



INSTALLING TELEVANTAGE

TELEVANTAGE 8

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INTRODUCTION

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TeleVantage overview

Welcome to TeleVantage!

TeleVantage is a feature-rich, software-based phone system that combines rock-solid stability with the most advanced communications technology available today. TeleVantage delivers greater functionality, flexibility, and value than proprietary PBXs to a variety of customers, from small offices to large enterprise organizations with sophisticated call centers.

About this manual

This manual provides information on planning for your TeleVantage system, as well as instructions for installing the TeleVantage Server, TeleVantage database server, and TeleVantage workstation applications.

For information on selecting the Dialogic telephony hardware and software necessary to run TeleVantage, as well as instructions for installing these components, see *Installing Dialogic Telephony Components*. For instructions on using TeleVantage after it is installed, see *Administering TeleVantage* and *Using TeleVantage*.

Major TeleVantage features

Major TeleVantage features include:

- **Fault tolerant architecture.** Designed to keep your phone system up and running. If the network or your desktop computer goes down, your phone lines are unaffected. Even in the case of a TeleVantage Server malfunction or power outage, your critical phone lines will stay open.
- **Software-only solution.** With Dialogic's Host Media Processing (HMP), you can deliver a pure IP-PBX media server solution using just software. Just add the HMP licenses you need for the number of IP ports and the media processing you want to support.
- **System scalability.** Scale to 280 trunks and 720 stations using the appropriate Dialogic telephony boards, or to 288 VoIP ports using Dialogic HMP. (See page 3-10 for more information.)
- **Graphical call control.** Gives you an easy visual way to place calls, transfer, put on hold, send to voice mail, set up conference calls and more.
- **Verbal menus.** Guides you through all call handling and user management tasks so that you can use TeleVantage even without a computer.
- **Full-featured voice mail.** Lets you create caller-specific greetings, log in remotely, and manage your voice messages graphically from TeleVantage ViewPoint or your e-mail Inbox. You can also easily call back the person who left you a message.

- **Powerful call center options.** Two types of call centers are available in TeleVantage—call center queues and ACD workgroups. Call center queues provide a full-featured call distribution system, enabling you to customize your callers' hold experience, play single or repeating prompts, prompt callers to enter data, configure call priority, and set up multi-level supervisor permissions. ACD workgroups provide fewer features and are available to you if you have not purchased the Call Center Agent licenses that are required for call center queues. You can use the TeleVantage Call Center Reporter to run a variety of reports on call center activity for both call center queues and ACD workgroups.
- **E-mail, pager, and call notification.** Receive notification of incoming voice mail, using e-mail, pager, or by having TeleVantage call you.
- **Advanced caller identification.** Using PIN numbers or Caller ID, TeleVantage lets you easily screen every call and message, either visually or by announcing the caller's name when you answer the phone.
- **Call recording.** Lets you record conversations of calls or conferences, on demand or automatically across the entire company or specified individuals.
- **Personal statuses.** Lets you create "Vacation," "Out of the Office," and other personal statuses to let your coworkers know what you are doing. Personal status can set whether your phone rings, the greeting that plays, and routing list behavior when you are not able to answer calls.
- **TeleVantage ViewPoint Web Access.** Enables users with a Web browser to access voice mail or manage personal settings from anywhere in the world over the Internet or from non-Windows platforms in the office.
- **"Follow-me" call forwarding.** Features routing lists that try several locations to find you. You can create several routing lists and apply them to specific callers.
- **Call logging with cradle-to-grave history.** Lets users see a record of their own calls and gives TeleVantage system administrators access to your company's complete log. Click on any call in the Call Log or Call Monitor to see a real-time history of its flow through the system.
- **Scheduled auto attendants.** Allows you to schedule an auto attendant's use of specific greetings and the way it routes calls according to the time of the day and days of the week.
- **Flexible Internet-ready architecture.** Supports pure SIP or H.323 IP telephony and hybrid solutions such as IP-connected phones. Lets you adapt to Internet telephony at your own pace.
- **TAPI Service Provider and Contact Manager Assistant.** Lets you use Act!, Outlook, GoldMine, GoldMine FrontOffice, or other TAPI-compliant applications with TeleVantage. You can place calls and receive screen-pop identifications when you receive calls from contacts in these applications.

- **The TeleVantage Software Development Kit and open architecture.** Use one of the many off-the-shelf applications available from third-party vendors to customize TeleVantage behavior and call processing. For the ultimate in flexibility, programmers can use the included comprehensive TeleVantage Software Development Kit (SDK) to develop custom applications.
- **Multi-lingual system prompts.** Lets both users and callers select the language in which they hear TeleVantage prompts. American English, UK English, and Spanish voice prompts are included with TeleVantage. French Canadian, French Parisian, and German voice prompts are available separately. See your TeleVantage provider for more information.
- **CLASS and ADSI feature support.** For analog CLASS phones and IP phones, Caller ID, Caller ID on Call Waiting, and message waiting indicators are supported.
- **Digital phone support.** TeleVantage supports Toshiba digital phones, including the phone's fixed buttons, LCD display, hot dial pad, and voice-first answering, as well as the following configurable feature buttons: Primary Directory Numbers, Secondary Directory Numbers, Record Call, Do Not Disturb, Speed Dial/Busy Lamp Field (BLF), Account Code, Park/Unpark, Phone Page, Release, Send to Voice Mail, Call Forwarding, Disconnect, Take Call, Flash, Conference/Transfer, and Call Menu.
- **Tenanting support.** Tenanting allows one Server to be shared between multiple companies or groups, called organizations. Calls can be tracked by organization in the Call Log.
- **Instant Messaging.** TeleVantage provides a simple, secure Instant Messaging tool that enables real-time typed conversation between users who are running ViewPoint and have instant messaging enabled. Users can initiate an Instant Messaging session by right-clicking another user's name in the ViewPoint Extensions list and choosing Send an instant message.

Significant new features in TeleVantage 8

For a complete list of new features, do either of the following:

- Double-click the **WhatsNew.htm** document on the Master CD.
- Select the **Show What's New** checkbox at the end of the TeleVantage Workstation Setup.

How to use this manual

There are two related installation manuals that guide you through all of the steps required to plan for and install your TeleVantage system:

- *Installing TeleVantage* (this manual) is your starting point, and contains two main sections:
 - **Section 1, “Preparing for Installation”.** The chapters in this section describe the TeleVantage components, PC and network requirements, and the various trunk and station options you can use with TeleVantage.

If you are installing TeleVantage for the first time—or even if you are upgrading from a previous version—read the chapters in this section thoroughly for information that will help you plan and prepare for installation, including current TeleVantage requirements, and how to order trunks and services.
 - **Section 2, “Performing the Installation”.** The chapters in this section describe the installation process in detail.

Follow the steps in each chapter before going to the next chapter. The Introduction in each chapter explains exactly which of the steps in that chapter you must perform.
- *Installing Dialogic Telephony Components* describes the two types of telephony resources (Dialogic HMP or Dialogic boards) that you can use with TeleVantage, as well as how to install and configure them. For an overview of the ways that you can provide telephony resources for TeleVantage, see Chapter 2 in *Installing Dialogic Telephony Components*.

Where to get help

Contact your TeleVantage provider for technical support—Vertical only provides technical support through TeleVantage providers. For information about how to report problems, see “Reporting problems to your TeleVantage provider” in Chapter 12 in *Administering TeleVantage*.

You can get help through TeleVantage documentation as described in the next section.

TeleVantage documentation

TeleVantage provides documentation in several easy-to-access online formats that provide the benefits of instant hypertext navigation. This section describes the different TeleVantage documents and how to access them in various formats.

Ordering printed documentation

You can order printed versions of some TeleVantage documents. To do so, contact your TeleVantage provider.

The TeleVantage documentation set

The following table shows the TeleVantage documentation set and the formats in which each item is available. See “Accessing online documentation” on page 1-8 for instructions on using each format.

Document	Audience	Available in print	HTML book	Acrobat PDF
<i>Installing TeleVantage</i> This manual covers the requirements and installation process for upgrades and fresh installations, and describes how to order telephone company services, add licenses, and troubleshoot problems.	Administrators and TeleVantage providers	Yes	Yes	Yes
<i>Installing Dialogic Telephony Components</i> This manual covers the requirements and installation process for upgrades and fresh installations, and describes how to change hardware and troubleshoot problems.	Administrators and TeleVantage providers	No	Yes	Yes
<i>Administering TeleVantage</i> This manual describes setting up, managing and monitoring your TeleVantage system, including using the TeleVantage Administrator to configure system settings, trunks, stations, users, call routing, IP telephony, and more.	Administrators	No	Yes ¹	Yes
<i>Using TeleVantage</i> This manual covers how to use the TeleVantage system, including the telephone commands, TeleVantage ViewPoint, ViewPoint Web Access, working from remote locations, call center participation, and more.	All audiences	No	Yes	Yes

Document	Audience	Available in print	HTML book	Acrobat PDF
<i>TeleVantage QuickStart Guide</i> This small guide provides easy-to-read instructions for first-time users and basic TeleVantage use, including a complete telephone command reference and coverage of ViewPoint fundamentals.	All audiences	No	Yes	Yes
<i>TeleVantage Call Center Administrator's Guide</i> This manual describes configuring, maintaining, supervising, and participating in a TeleVantage call center. Contains separate sections for administrators and agents. Includes instructions for running call center queues, ACD workgroups, and TeleVantage call center reports.	Administrators	No	Yes ¹	Yes
<i>TeleVantage Developer's Guide</i> This reference describes how to extend TeleVantage's built-in features using the Client API, the Add-in API, the IVR Plug-in API, the Device Status API, and TAPI.	Programmers	No	No	Yes
<i>TeleVantage Pocket Reference Card</i> This wallet-sized card is a convenient reference for the most-used TeleVantage telephone commands.	All audiences	No	No	Yes

¹. *Administering TeleVantage* and the *TeleVantage Call Center Administrator's Guide* are combined in a single HTML book called *Administering TeleVantage and Call Centers*

Accessing online documentation

You can access TeleVantage's online documentation in the following formats.

Online Help

From any TeleVantage application window, you can press F1 or click **Help** to get context-sensitive Help describing the window and its individual fields. For overviews of features, see the online or PDF books, not the online Help.

HTML books

TeleVantage provides complete compiled HTML Help (CHM) versions of four of its printed manuals, enhanced with hypertext navigation panes and links. To access the HTML books from within ViewPoint or the Administrator, choose **Help > Online Books**.

To access the HTML books without ViewPoint or the Administrator, open the following files, located by default in **C:\Program Files\Common Files\Vertical\TeleVantage**:

- **AdministeringTV.chm**. Contains *Administering TeleVantage* and the *TeleVantage Call Center Administrator's Guide*.
- **InstallingTV.chm**. Contains *Installing TeleVantage*.
- **InstallingIntel.chm**. Contains *Installing Dialogic Telephony Components*.
- **UsingTV.chm**. Contains *Using TeleVantage*.

Adobe Acrobat PDF books

The PDF versions of TeleVantage manuals are the same files that Vertical sends to be professionally printed, and can be used for your own printing or browsing. They are available on the Master CD in the **\Manuals** directory. To view and print these files, use the Adobe Acrobat Reader, available on the Master CD in the **\Adobe** directory.

TELEVANTAGE COMPONENTS

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Introduction

TeleVantage consists of several components that you can install separately. This chapter provides an overview and a description of the purpose of each of the following components:

- **TeleVantage Server.** See page 2-3.
- **TeleVantage Administrator.** See page 2-4.
- **TeleVantage ViewPoint.** See page 2-4.
- **TeleVantage Web Services.** See page 2-4.
- **TeleVantage Enterprise Manager.** See page 2-5.
- **TeleVantage TAPI Service Provider.** See page 2-5.
- **TeleVantage Contact Manager Assistant.** See page 2-6.
- **TeleVantage Archived Recording Browser and Recording Archive Service.** See page 2-6.
- **TeleVantage Station Message Detail Recording (SMDR) Service.** See page 2-6.
- **TeleVantage Robbed Bit T1 Experimenter.** See page 2-6.
- **TeleVantage Software Development Kit.** See page 2-7.

TeleVantage workstation applications

The Administrator, TeleVantage ViewPoint, the TAPI Service Provider, and the Contact Manager Assistant are also referred to within this manual as the TeleVantage workstation applications.

TeleVantage add-ons

If you are using any of the following TeleVantage add-ons, contact your TeleVantage provider to see if you also need to upgrade any of the them when you install this version of TeleVantage.

- TeleVantage Call Classifier and WebPop
- TeleVantage Persistent Pager
- TeleVantage Smart Dialer
- TeleVantage Call Center Scoreboard
- TeleVantage Conference Manager
- TeleVantage Microsoft Customer Relations Management (MSCRM)

TeleVantage Server

The TeleVantage Server is the heart of the TeleVantage system. It controls phone traffic in and out of your office, and maintains a database of user and system information, call history, and contacts, as well as all voice files, including voice messages.

The TeleVantage Server runs on a Windows PC that contains Dialogic telephony resources. See “TeleVantage Server PC requirements” on page 3-2 for specific Server requirements. See Chapter 2 in *Installing Dialogic Telephony Components* for a comparison of the methods by which you can provide telephony resources on the Server.

The Device Monitor

The Device Monitor lets you see the current activity and status of each trunk and station on the TeleVantage Server. You can also start and stop the Server by using the Device Monitor, which you can run independently of the TeleVantage Administrator application. The Device Monitor is installed automatically on the TeleVantage Server PC.

The same information is also available in the Device Monitor view of the TeleVantage Administrator.

Server reliability features

Because consistent phone service is vital to any business, the TeleVantage Server takes steps to ensure continued phone service, even when the phone system is impaired.

Failover support

With analog phone service, TeleVantage ensures failover telephone support in the event of a power failure or system crash. To set up failover, use the Dialogic DI0408LSAR2 integrated trunk and station board, which supports on-board failover with direct trunk-to-station connections (no cabling is required.) See “Supported integrated trunk and station board” in Chapter 4 in *Installing Dialogic Telephony Components* for more information.

Note: Failover support is only available for analog trunks. On systems that primarily use digital (T1, E1, or IP) trunks, configure several analog trunks so that the system can automatically switch to failover mode when necessary.

Other reliability features

For further reliability, Windows supports RAID drives and uninterruptible power supplies.

TeleVantage Administrator

The TeleVantage Administrator application enables you to configure, maintain, and monitor your TeleVantage system. You can use the Administrator to manage trunks, extensions, users, create and modify auto attendant menus, and manage all aspects of your TeleVantage system. You can install the Administrator on any PC on your network, including the TeleVantage Server PC.

See “Administrator and ViewPoint requirements” on page 3-18 for specific requirements.

TeleVantage ViewPoint

TeleVantage ViewPoint is a Windows application that can be used in conjunction with any telephone to place and receive calls, access voice messages visually, change call handling preferences, and use any of the features of the TeleVantage system. You can install ViewPoint on any PC on your network.

While ViewPoint enhances your access to TeleVantage, it is not required. Most TeleVantage features are also available to users over the phone through the telephone commands.

See “Administrator and ViewPoint requirements” on page 3-18 for specific requirements.

A Web browser-accessible version of ViewPoint is available by installing TeleVantage Web Services (described below.)

TeleVantage Call Center Reporter

The TeleVantage Call Center Reporter is installed automatically when you install TeleVantage ViewPoint.

The Call Center Reporter allows you to run more than a dozen detailed reports on call activity and telephone usage in TeleVantage. By carefully tracking only the call activity on which you want to report, it allows you to quickly identify how effectively your phone system is being used by users, agents, queues, and trunks.

The TeleVantage Call Center Reporter has additional requirements beyond those of TeleVantage ViewPoint. See “Call Center Reporter requirements” on page 3-21 for details.

TeleVantage Web Services

With TeleVantage Web Services, users can use TeleVantage Viewpoint Web Access, an HTML version of the TeleVantage ViewPoint application that is accessible via any Web browser. With ViewPoint Web Access, users can access TeleVantage remotely through the Internet or their Intranet, and from non-Windows platforms such as Macintosh. ViewPoint Web Access offers access to all TeleVantage data and most ViewPoint functions.

See “TeleVantage Web Services requirements” on page 3-20 for specific requirements.

TeleVantage Enterprise Manager

TeleVantage Enterprise Manager allows a distributed network of TeleVantage Servers to appear and behave as a single phone system.

Enterprise Manager facilitates the configuration and operation of a network of TeleVantage Servers (called a TeleVantage domain) by automating the initial intra-Server configuration and providing data synchronization services that make the domain of TeleVantage Servers appear as a single distributed phone system.

Enterprise Manager manages the domain's Enterprise Gateways, Enterprise Gateway users, and dialing services automatically. Without Enterprise Manager, you would need to do this manually, configuring multiple TeleVantage Servers to communicate with each other using Voice over IP (VoIP) by setting up Enterprise Gateways and Enterprise Gateway users on each TeleVantage Server via the TeleVantage Administrator.

For more information, see *TeleVantage Enterprise Manager Installation and Administrator Guide*.

TeleVantage Multi-line TAPI Service Provider

You can install TeleVantage Multi-line TAPI Service Provider on any server that needs multiple lines for TAPI support, for example, Citrix MetaFrame or Windows Terminal Services.

TeleVantage Multi-line TAPI Service Provider provides TAPI screen pops and TAPI dialing for multiple users with TAPI-compatible applications such as Act!. The TeleVantage Multi-line TAPI Service Provider can be used with the Contact Manager Assistant to provide screen pops to Microsoft Outlook, GoldMine, and GoldMine FrontOffice as well.

TeleVantage TAPI Service Provider

The TAPI Service Provider allows any TAPI-compatible application on a networked PC to access your phone lines through TeleVantage. See "TAPI Service Provider/Contact Manager Assistant requirements" on page 3-19 for specific requirements. Users who install the TAPI Service Provider on their PCs can place calls from their station using contact managers such as Microsoft Outlook, Act!, GoldMine, and GoldMine FrontOffice.

The TAPI Service Provider runs in the background and enables the contact manager or other application to use TeleVantage. You can install the TAPI Service Provider with or without TeleVantage ViewPoint.

Note: This TAPI service provider is meant for individual users as it only allows managing calls on one station. For multiple users, see the TeleVantage Multi-line TAPI Service Provider described in the previous section.

TeleVantage Contact Manager Assistant

The TeleVantage Contact Manager Assistant tightly integrates with Outlook, GoldMine, and GoldMine FrontOffice, so that you can receive screen-pop notification when any of your Outlook, GoldMine, or GoldMine FrontOffice contacts call you. See “TAPI Service Provider/Contact Manager Assistant requirements” on page 3-19 for specific requirements.

You can install the Contact Manager Assistant on individual workstations with the TeleVantage TAPI Service Provider, or on a Citrix Server or Windows Terminal Server along with the Multi-line TAPI Service Provider described on page 2-5.

The TeleVantage Contact Manager Assistant is not required if you are using Act! as your contact manager.

TeleVantage Archived Recording Browser and Recording Archive Service

The TeleVantage Archived Recording Browser is a tool for searching, listening to, and managing thousands of mailbox recordings (voice messages and call recordings) that have been archived to a separate archive server PC by the Recording Archive Service. Off loading the archive process from the TeleVantage Server allows mailbox recordings to be archived from multiple TeleVantage Servers, and prevents the resource-intensive archiving process from impacting TeleVantage performance.

See “TeleVantage Recording Archive Service requirements” on page 3-21 for specific requirements for the archive server PC.

TeleVantage Station Message Detail Recording (SMDR) Service

The TeleVantage SMDR Service lets you send real-time call data from TeleVantage to a third-party application. Third-party applications might be anything from a printer that prints a line for each call, to call accounting software that generates detailed reports. For complete information about supported output formats, as well as how to install, configure, and use SMDR Service, see *Administering TeleVantage*.

Note: SMDR Service is not normally needed, since TeleVantage has comprehensive call logging and reporting built in.

TeleVantage Robbed Bit T1 Experimenter

The TeleVantage Robbed Bit T1 Experimenter is a utility that lets you configure a Robbed Bit T1 line to match the signaling specifications used by your carrier and make test calls until the line is operating properly. You can also use the TeleVantage Administrator to configure Robbed Bit T1 settings.

TeleVantage Software Development Kit

The TeleVantage Software Development Kit (SDK) lets you extend TeleVantage functionality. The TeleVantage SDK consists of the following components:

- The Client Application Programming Interface (API) gives custom applications the ability to access all functions and data in TeleVantage ViewPoint.
- The Add-In API allows you to extend the ViewPoint application itself with additional functionality.
- The IVR Plug-in API is a powerful way to integrate virtually any interactive voice response or voice processing application with your TeleVantage system.
- The Device Status API gives custom applications the ability to get detailed information about trunks and stations from the TeleVantage Server.

For more information about extending TeleVantage, see *Administering TeleVantage* and *TeleVantage Developer's Guide*. The *TeleVantage Developer's Guide* is available as an Acrobat file—**tvsdk.pdf**—in the **manuals** directory on the Master CD.

TELEVANTAGE REQUIREMENTS

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Introduction

This chapter describes hardware and software requirements for the PCs on which the various TeleVantage components run. It also describes the requirements for telephone lines and the local area network (LAN) configuration in your office environment. Make sure all these requirements are met before you begin the installation.

In addition to the requirements described in this chapter, see *Installing Dialogic Telephony Components* for information about Dialogic hardware and software requirements.

Choosing a location for the TeleVantage Server PC

The TeleVantage Server must be located in a dust-free environment that is close to the location at which the trunk lines from your telephone company enter the premises and your inside phone lines begin. The existing telephone wiring closet available in most offices is a suitable location.

The Server must also have access to your network wiring if you plan to use any TeleVantage components on your LAN or remotely, or if you plan to use the Internet telephony features provided by TeleVantage.

The location does not have to be easily accessible, since you can remotely reconfigure and manage a TeleVantage Server, using Windows Terminal Services or Remote Desktop (as long as the TeleVantage Server is not running Windows 2000 Professional.) See the TeleVantage Server operating system requirements below for details.

TeleVantage Server PC requirements

The TeleVantage Server PC works optimally if it is dedicated to TeleVantage. The minimum requirements for the TeleVantage Server PC are described below.

Important: Virtual PC software solutions from companies like Microsoft or VMWare cannot be used for the TeleVantage Server.

TeleVantage Server PC operating system requirements

The following operating systems can be used:

- **Microsoft® Windows® Server 2003.** Base release as well as Service Pack (SP) 1 and 2. Windows Server 2003 includes Windows Terminal Services for remote management.
- **Windows 2000 Server.** SP4 or higher. Windows 2000 Server includes Windows Terminal Services for remote management.

- **Windows XP Professional.** Base release as well as SP1-SP2. Windows XP Professional includes Remote Desktop for remote management. Note that a TeleVantage Server using Windows XP Professional is limited to supporting a maximum of 10 simultaneous connections to any TeleVantage workstation application (ViewPoint, Administrator, TAPI Service Provider, Contact Manager Assistant, Archived Recording Browser, or ViewPoint Web Access session.)
- **Windows 2000 Professional.** SP4 or higher. Remote management software is not included, but you can purchase Symantec pcAnywhere separately. Note that a TeleVantage Server using Windows 2000 Professional is limited to supporting a maximum of 10 simultaneous connections to any TeleVantage workstation application (ViewPoint, Administrator, TAPI Service Provider, Contact Manager Assistant, Archived Recording Browser, or ViewPoint Web Access session.)

Important operating system-specific notes

Review the notes that apply to your version of Windows:

- **Windows Server 2003 or Windows XP Professional SP2.** If your TeleVantage Server currently runs or will run Windows XP Professional SP2 or Windows Server 2003 SP1 or SP2, review the important information about Windows Firewalls in Appendix F, “Configuring TeleVantage for the Windows Firewall.”
- **Windows Server 2003 or Windows 2000 Server.** Windows Terminal Services can operate in either Remote Administration or Full Terminal Services mode. Only Remote Administration mode is supported on the TeleVantage Server PC. You can install Terminal Services in Full Terminal Services mode on any non-TeleVantage Server PC in your network.

TeleVantage Server PC CPU and memory requirements

TeleVantage supports dual- and quad-processor CPUs as well as Intel’s Hyperthreading Technology (HT.)

CPU and memory requirements depend on the following variables:

- Call activity
- Data storage requirements
- Your telephony resources on the TeleVantage Server
 - If you are using Dialogic Host Media Processing (HMP) software, see the table on page 3-5.
 - If you are using Dialogic boards, see the table on page 3-6.

For information to help you decide which method of providing telephony resources is best for you, see Chapter 2 in *Installing Dialogic Telephony Components*.

When to increase CPU speed and memory

CPU speed and memory availability have a direct effect on TeleVantage performance. While the minimum requirements listed in the tables on pages 3-6 and 3-5 are adequate for lightly-used, demonstration, or test systems, a faster CPU and additional memory are recommended for systems with heavier usage.

For example, a system that handles 5000 calls per day requires more memory and a faster CPU than a system that handles only 500 calls each day. In addition, a system that processes more than 5000 calls a day will probably require the full version of Microsoft SQL Server for the TeleVantage database server, which will in turn consume additional memory.

You should increase CPU speed and memory beyond the amounts recommended in the tables on pages 3-6 and 3-5 in cases like the following:

- You are using Windows XP Professional or Windows Server 2003.
- You are using VoIP.
- You experience heavy call volumes.
- You have a call center that handles a high volume of calls.
- You have significant storage requirements (for example, you retain a year or more of Call Log data on your TeleVantage Server without archiving.)
- You record all calls.

CPU and memory requirements when using Dialogic HMP

The table on page 3-5 lists CPU and memory recommendations for various configurations when you are using Dialogic HMP software to provide telephony resources for TeleVantage.

Important: Be aware that Dialogic HMP requires a more powerful CPU and more memory to handle the amount of traffic compared to Dialogic boards, since all media processing occurs on the PC's CPU and memory. See Chapter 3 in *Installing Dialogic Telephony Components* for specific Dialogic HMP requirements.

In the table, **Number of simultaneous VoIP and voice resources used** is the total number of Realtime Transport Protocol (RTP) resources available.

Note: An Excel spreadsheet called **IntelRTPResourceNeeds.xls** is provided for you to help calculate the resources you need to support your configuration. It is located by default in **C:\Program Files\TeleVantage\Administrator**.

Number of simultaneous VoIP and voice resources used (xx/yy)	Recommended CPU and speed		Recommended memory
	Using G.711 codec ¹	Using G.723.1, G.729A, or G.729AB codec	
Up to 4/2 ²	Intel® Pentium III, 850 MHz or higher	Intel Pentium III, 850 MHz or higher	512 MB
Up to 32/16 ²	Intel Pentium III, 1.26 GHz or higher	Intel Pentium 4, 1.7 GHz or higher	1 GB
Up to 64/32 ²	Intel Pentium 4, 2.0 GHz or higher	Dual Intel Xeon™, 2.0 GHz or higher	1 GB
Up to 96/48 ²	Single Intel Xeon, 2.4 GHz or higher	Dual Intel Xeon, 2.8 GHz or higher	2 GB
Over 96/48 ²	Dual Intel Xeon, 2.4 GHz or higher	Dual Intel Xeon, 3.06 GHz or higher	2 GB

1. Based on 20 ms frame size.

2. In xx/yy, xx refers to the number of resources used for the Basic RTP G.711 codec; yy refers to the resource usage with one of the G.723.1, G.729A, or G.729AB (Enhanced RTP) codecs. One-half as many simultaneous VoIP and voice resources are supported when using one of the Enhanced RTP codecs as when using a Basic RTP G.711 codec, because using an Enhanced RTP resource also consumes one Basic RTP G.711 resource.

CPU and memory requirements when using Dialogic boards

The table on page 3-6 lists minimum CPU and memory recommendations for various configurations when you are using Windows 2000 and Dialogic boards and drivers to provide telephony resources for TeleVantage at a light-to-average call volume. See page 3-4 for cases in which you should bump up memory and CPU requirements to the next tier in the table.

In the table, **Total # of ports** is the total number of trunks and stations. In any configuration of Dialogic boards, the total number of trunks in use simultaneously cannot exceed 280, and the total number of stations in use simultaneously cannot exceed 720. In office environments without a call center, typically only 25% of stations are ever in use at the same time, but be sure to know your environment's typical and peak usage and plan accordingly.

System size	Total # of ports	Examples	Recommended CPU	Recommended memory
Very small	32	8 trunks and 24 stations	Pentium® II, 400 MHz or higher	at least 256 MB
Small	168	48 trunks and 120 stations	Pentium II, 400 MHz or higher	at least 512 MB
Medium	360	96 trunks and 264 stations	Pentium III, 800 MHz or higher	at least 768 MB
Large	672	192 trunks and 480 stations	Pentium IV, 2 GHz or higher	at least 1 GB
Very large	1000	280 trunks and 720 stations	Dual Xeon™, 3 GHz processors or higher	at least 2 GB

Dialogic recommends a minimum of 512 MB of memory for systems with 3 or more Dialogic DM3 telephony boards installed. (See “About DM3 boards” in Chapter 4 in *Installing Dialogic Telephony Components* for a list of DM3 boards supported by TeleVantage.)

TeleVantage Server PC hard drive and available disk space requirements

Hard drive requirements

Important: It is critical that you format all hard drives on the TeleVantage Server with NTFS (not FAT or FAT32) as the Server file system. This is especially important for the hard drive where the TeleVantage voice files, database, and log files are stored.

Minimum disk space requirements

The amount of disk space you need depends on the size of your system, because each user requires significant space for voice files such as voice messages and greetings.

The following table lists the minimum disk space required for systems with different numbers of users, all of whom have voice mailboxes. By default, TeleVantage allows a maximum of 30 minutes of voice files per user—20 minutes for voice messages and 10 minutes for personal recordings such as greetings and voice titles. Increasing the default per-user settings for voice messages and personal recordings requires more disk space, as indicated in the table.

Users	Minimum disk space requirements by Minutes of voice files per user					
	30 minutes	60 minutes	90 minutes	120 minutes	180 minutes	240 minutes
24	5 GB	5 GB	5.5 GB	5.5 GB	6.5 GB	7 GB
48	5 GB	5.5 GB	6.5 BG	7 GB	8.5 GB	9.5 GB
96	5.5 GB	7 GB	8.5 GB	9.5 GB	12.0 GB	15 GB
144	6.5 BG	8.5 GB	10 GB	12 GB	16 GB	20 GB
264	8 GB	11.5 GB	15 GB	18.5 GB	25.5 GB	33 GB
300	8.5 GB	12.5 GB	16.5 GB	20.5 GB	28.5 GB	36.5 GB
420	10 GB	15.5 GB	21.5 GB	27 GB	38.5 GB	49.5 GB
560	12 GB	20 GB	27 GB	34.5 GB	49.5 GB	64.5 GB
720	14 GB	24 GB	33.5 GB	43 GB	62.5 GB	81.5 GB

If you want to calculate the total disk space required for your specific configuration (if it is not included in the previous table), add the following together and then round up to the nearest .5 GB:

- 1 GB for Windows.** Microsoft recommends at least 1 GB disk space for Windows 2000 Server.
- + **1.2 GB for Dialogic hardware and drivers or Dialogic HMP software**
- + **2 GB for the TeleVantage database and system files**
- + **# of users * (.46 MB * minutes of voice files per user)**
- + **640 MB per network interface card if network capture is enabled** (network capture is enabled by default.) See “Capturing network troubleshooting logs” in Chapter 12 in *Administering TeleVantage* for more information.

Offline storage requirements

An offline storage device such as a tape drive is useful for backing up the TeleVantage database, voice messages, and Windows Event Logs.

TeleVantage Server PC RAID requirements

TeleVantage supports and recommends Windows Server RAID implementations. To ensure maximum uptime, configure your TeleVantage Server PC with RAID as you would any other mission-critical system. Some options are listed in the following table. Contact your server manufacturer for more detailed information.

Version	Disk controllers/ Drives required	Comments
RAID 1	1 controller (disk mirroring); 2 drives	Provides fault tolerance in the event of a single drive failure, but not a controller failure. Slower, because data must be written to both drives.
RAID 1	2 controllers (disk duplexing); 2 drives	Provides fault tolerance in the event of a single disk or single controller failure.
RAID 5	1 controller; at least 3 drives	Provides continual operation in the event of a single drive failure, but not a controller failure.

TeleVantage Server PC slot requirements

The TeleVantage Server PC requires slots for Dialogic boards, if that is how you are providing telephony resources. Slots are not required if you are providing telephony resources via Dialogic HMP. See Chapter 2 in *Installing Dialogic Telephony Components* for more about using Dialogic telephony boards vs. using Dialogic HMP.

TeleVantage Server PC COM/USB port requirements

Up to 2 COM ports may be required, as follows:

- 1 COM or USB port for an optional UPS with power-down alarm feature.
- 1 COM port if you are using TeleVantage Station Message Detail Recording (SMDR) Service to connect with a third-party call accounting package over a serial connection. See *Administering TeleVantage* for information about installing, configuring, and using SMDR Service.

TeleVantage Server PC network requirements

Although TeleVantage can run without being connected to a network, many of its features are unavailable without a network. See “Network requirements” on page 3-12 for more information, as well as other network-related requirements.

Network interface card requirements

If you are using a network, you must have a network interface card (NIC) installed in the TeleVantage Server.

If you are using Dialogic HMP or Dialogic Internet telephony boards using a host-based VoIP stack, you must have a 100 BaseT NIC (a 1000 BaseT NIC may improve CPU utilization.)

Although it is not a requirement, consider installing two NICs in the Server PC. Use one NIC for the VoIP RTP audio traffic handled by the Dialogic telephony resources, and the other NIC for your other network traffic (for example, Administrator, ViewPoint or other data connections).

Note: Use a static IP address for the NIC that handles VoIP RTP audio traffic.

Modem or LAN connection requirements

If you will be using TeleVantage ViewPoint Web Access, you need Internet access for the PC running TeleVantage Web Services. For more information, see Chapter 14, “Installing TeleVantage Multi-line TAPI Service Provider.”

TeleVantage Server PC power supply and cooling requirements

Power supply requirements

It is highly recommended that you use an uninterruptible power supply (UPS) in conjunction with the TeleVantage Server to protect against power surges and failures.

Make sure that your power supply meets the requirements of any installed Dialogic boards. DM3 boards in particular require a lot of power. (See “About DM3 boards” in Chapter 4 in *Installing Dialogic Telephony Components* for a list of DM3 boards supported by TeleVantage.) Contact your technical support representative if you have questions on power supply requirements for specific boards.

Cooling requirements

If you will be using any of the following Dialogic boards, the TeleVantage Server PC will need multiple fans:

- Dialogic Internet telephony boards
- Dialogic boards with high power requirements

TeleVantage Server PC CD ROM requirements

One CD ROM drive is required to install the TeleVantage software and related components from the TeleVantage CDs.

TeleVantage Server PC license requirements

A Server license is required for each TeleVantage Server. See “TeleVantage license requirements” on page 3-16 for more information.

Dongle requirements

A dongle is one of the hardware locking options for TeleVantage licenses, and is not required. If you want a dongle, contact your TeleVantage provider. Two Rainbow Technologies dongles are supported with TeleVantage:

- Vertical Communications Computer ID Key Parallel Port Dongle (part #SLM25-4)
- Vertical Communications Computer ID Key USB Dongle (part #SLMUSB-4)

See “How hardware locking works” on page D-9 for more information about dongles and other options for hardware locking.

TeleVantage system configuration limits

Scalability limits

Vertical has certified TeleVantage 8.0 and Dialogic HMP 3.0 to support up to 288 G.711 IP ports on a single Intel Xeon processor with hyper-threading and 2 GB RAM. While HMP 3.0 has been certified by Dialogic to support up to 500 G.711 IP ports running on a Quad core 2.66 GHz processor and 4 GB RAM, that configuration has not yet been certified with TeleVantage 8.0 at the time this manual was printed. Contact your TeleVantage provider for the latest certification results if you need to support more than 288 VoIP ports.

If you are using Dialogic telephony boards, a single TeleVantage Server can support up to 280 trunks and 720 stations.

Connecting TeleVantage Servers

Multiple TeleVantage Servers can be connected together in several ways to create a combined system with greater capacity:

- To use TeleVantage Enterprise Manager, see *TeleVantage Enterprise Manager Installation and Administrator Guide*.
- To use TeleVantage Gateways, see Chapter 14 of *Administering TeleVantage*.

Using industrial PCs for larger systems based on Dialogic Boards

Very small- to small-sized TeleVantage systems can be configured on a standard PC that meets the requirements outlined earlier in this chapter. Systems that are not expected to exceed 16 trunks by 48 lines—or other configurations not exceeding 4 boards—can usually be constructed in this way.

Larger systems may require more slots than are found in a standard PC. These systems may also require a bigger power supply to power all the boards. Large systems can be built using industrial PCs.

For information about recommended industrial PCs, contact your TeleVantage provider.

TeleVantage database server requirements

TeleVantage uses a database server to manage and access the TeleVantage database.

- **Database server software.** The database server that you choose depends on how you intend to use TeleVantage. For example, a system that processes more than 5000 calls a day will probably require the full version of Microsoft SQL Server for the TeleVantage database server, which will consume additional memory. (See the CPU and memory requirements section on page 3-3 for a discussion of call volume and system size.)
 - **Very small, small, or medium-sized TeleVantage Servers with typical office call volumes.** Use any of the following database servers:
 - Microsoft Data Engine (MSDE) 2000 SP3a or SP4 (any edition.) MSDE 2000 is included on the Master CD.
 - Microsoft SQL Server 2000 SP3a or SP4 (any edition.) SQL Server 2000 must be purchased separately.

Note: MSDE 1.x and SQL Server 7.x are not supported. If you are running MSDE 1.x or SQL Server 7.x, you will need to upgrade as described in Chapter 9.

- **Large or very large TeleVantage Servers (Servers with heavy call volumes—more than 5000 calls a day, more than 5000 contacts, or that maintain a year's worth of Call Log data).** Use Microsoft SQL Server 2000 Standard or Enterprise Edition with the latest service pack applied.

Note: MSDE 2000, SQL Server 2000 (Personal, Developer, and Evaluation Editions), and SQL Server 2000 Desktop Engine are not recommended for large or very busy Servers because each contains a performance governor that prevents more than 8 simultaneous transactions, and each has a database size limit of 2 GB.

For more about the database server options available if you are installing TeleVantage for the first time or upgrading from a previous version, see Chapter 9, “Installing The TeleVantage Database Server.”

- **Available disk space.** 300 MB of available free space on the hard drive on which you install the database server.

Database configuration recommendations

For best performance and reliability, Microsoft recommends (but does not require) that you install the following components on separate hard drives. These components must be installed on a local drive of the TeleVantage Server, but do not have to be on the same local drive.

- Database server
- TeleVantage database
- Database transaction logs
- Database backup files

You specify the location of the database server when you install it according to the instructions in Chapter 9. You can specify separate paths for TeleVantage database, database transaction logs, and database backup files in either of the following ways:

- While installing the TeleVantage Server (first-time installations only).
- At a later time using the TeleVantage Administrator. See “Changing special TeleVantage directories” in Chapter 12 of *Administering TeleVantage*.

Network requirements

TeleVantage runs simultaneously on two communication systems:

- Your internal telephone wiring connects the TeleVantage Server to users’ telephones around the office.
- A Microsoft TCP/IP local area network connects the TeleVantage Server to users’ Windows PCs. This is the typical setup in most installations.

Note: TeleVantage runs on Microsoft networking over TCP/IP. If your site already runs a different network protocol, such as Novell IPX, you will need to run a dual stack configuration. The TCP/IP networking protocol must be installed on your network.

This manual explains how to configure your network for TeleVantage, but it does not describe wiring your premises or installing your LAN itself.

Using TeleVantage with a LAN

You must use a LAN if any of the following circumstances exist:

- You are installing TeleVantage software, such as TeleVantage ViewPoint or the TeleVantage Administrator, on a remote PC.
- You are using Dialogic HMP or are installing a Dialogic DM/IPx IP telephony board or DI0408LSAR2 integrated trunk and station board in order to use the TeleVantage Internet telephony features.
- You are using TeleVantage Web Services to provide ViewPoint Web Access to users via their Web browsers.
- You are using the TeleVantage e-mail notification feature.

TCP/IP and the Microsoft Network Client software are used to provide three kinds of communication for TeleVantage, as follows:

- Communication between the TeleVantage database and ViewPoint or the Administrator is provided by Microsoft Data Access Components (MDAC) using TCP/IP or named pipes. This mechanism delivers information such as mailbox contents, greetings lists, and Call Log data.
- Communications between the TeleVantage Server and ViewPoint or Administrator is provided by Microsoft Distributed Component Object Model (DCOM). DCOM allows real-time monitoring, call control, and media control, for example, when initiating file recording or playing from Windows.
- Access to voice files stored on the Server is provided by Microsoft networking file services so that audio can be played over the speakers on TeleVantage users' PCs.

Using TeleVantage without a LAN

It is possible, although not recommended, to run a TeleVantage system without a LAN. In such a configuration, users would access TeleVantage only through their phones, not through TeleVantage ViewPoint, and some ViewPoint-only features would be unavailable to them. To configure system settings and behavior, system administrators can run the TeleVantage Administrator or ViewPoint on the TeleVantage Server PC itself.

Network configuration requirements

This section explains network configuration requirements for workgroup-based and domain-based Windows networks.

Note: If you are installing TeleVantage on a network, the TeleVantage Server PC must be a member (stand-alone) Server, not a domain controller.

Microsoft Windows workgroup-based networks

In a Windows workgroup-based network, or a non-Microsoft network, anyone who runs a TeleVantage workstation application requires a network connection to the TeleVantage Server. In order for the TeleVantage Server PC to be accessible via the network, you must do one of the following:

- Set up an account for every user who will run a TeleVantage workstation application on a different PC in the workgroup. These accounts must be kept in sync with users' accounts on their PCs, for example if a user changes their password, that change must be made on the TeleVantage Server as well.
- Enable the Guest account with an empty password on the TeleVantage Server (not recommended for security reasons)

Note: The Windows Server installations disable the Guest account by default.

Microsoft Windows domain-based networks

In a Windows domain-based network, authentication is provided by the domain controller. In this configuration, each TeleVantage user must be a member of the domain that contains the TeleVantage Server.

The TeleVantage Server PC must be a member of the domain, or a stand-alone server, but not a domain controller.

Novell networks

To run TeleVantage on a Novell network, you must add Gateway and Client services for NetWare as a service on the TeleVantage Server PC.

Requirements for e-mail notification of voice messages

TeleVantage can automatically send an e-mail message to any address whenever a user receives a new voice message. Users can also choose to have the recorded voice message attached to the e-mail as a .WAV file. This enables users to receive both e-mail and voice mail using their e-mail application, and to monitor voice mail from a remote location as it arrives.

You can also synchronize TeleVantage with Microsoft Exchange Server so that messages deleted in one place are deleted from the other as well (see “IP telephony network requirements” on page 3-15.)

- If you are upgrading from a previous version of TeleVantage, your existing Microsoft Windows Messaging Application Programming Interface (MAPI) e-mail notification and Exchange synchronization settings are retained.
- For all first-time installations, e-mail notification and Microsoft Exchange synchronization are turned off by default.

Requirements for e-mail notification

In order to use e-mail notification, you must have an e-mail system or provider that supports Simple Mail Transfer Protocol (SMTP). Ask your e-mail administrator or SMTP provider for the SMTP connection parameters.

Configuring e-mail notification is described in Chapter 3 of *Administering TeleVantage*.

Note: For backward compatibility, e-mail notification is also supported using MAPI. The requirements and configuration steps are the same as for Microsoft Exchange synchronization.

Requirements for Exchange synchronization

In order to use Exchange synchronization, you must install and configure Microsoft Outlook on the TeleVantage Server. Microsoft Outlook Express is not supported. See the documentation that came with your e-mail client for installation and configuration procedures.

If you are using Outlook XP or Outlook 2003, Outlook must be running via a logged-on user for e-mail notifications to be sent.

Configuring Exchange synchronization is described on page 10-26.

IP telephony network requirements

It is recommended that your network's routers support DiffServ QoS via the TOS Octet to maintain good voice quality of service. See “Setting the Layer 3 QoS TOS Octet for higher VoIP quality” on page H-2 for more information.

IP telephony uses the SIP and H.323 protocols, which may be incompatible with the following network devices:

- Firewalls
- Network Address Translators (NATs)
- Packet filters
- Proxy servers

If you are planning to use IP telephony, check with the vendors of these devices to make sure that they support SIP or H.323.

Proxy server requirements

If your network uses a proxy server to access the Internet, a special configuration is required on Windows 2000/XP/2003 PCs in order to run TeleVantage workstation applications. See “Configuring TeleVantage for use with a proxy server” on page 10-24.

If you are using Microsoft Proxy Server, TeleVantage requires Microsoft Proxy Server version 2.0 or later.

TeleVantage license requirements

TeleVantage licenses can be used for 60 days before they must be activated to a hardware key over the Internet. See “Entering and activating your TeleVantage licenses” on page 10-16 for details.

The following licenses are available. The specific licenses that you need depend on how you plan to use TeleVantage.

- **Server license.** Required for each TeleVantage Server. You must have a valid Server license in order to start the TeleVantage Server. A Server license is provided when you purchase TeleVantage, and authorizes you to run one copy of the TeleVantage Server. Only one Server license is required per TeleVantage Server regardless of the number of trunks or users the Server supports.

In order to answer or place calls, you need the following licenses:

- **Trunk license.** Required for each trunk line. You must have a valid Trunk license for each analog, T1, E1, or BRI trunk connected to the TeleVantage Server.
- **IP Port license.** Required for each SIP or H.323 trunk connected to the TeleVantage Server. Note that you need one TeleVantage IP Port license per SIP or H.323 trunk, not per IP phone. A single call between two IP phones consumes 2 IP trunks for call control, even if using TeleVantage’s SIP RTP Relay for audio.
- **Station license.** Required for each internal station port (station ID) assigned to a TeleVantage User (extension). Station licenses are not consumed by station ports used for music on hold, by external stations, or by phones at a remote number (for example, home phones or cell phones).

A Station license is also required for each simultaneous call involving an IVR Plug-in. For more information about IVR Plug-in licensing, see *Administering TeleVantage*. For information about how TeleVantage Conference Manager (a TeleVantage Add-on that uses an IVR Plug-in) uses Station licenses, see the TeleVantage Conference Manager documentation.

In order to use TeleVantage ViewPoint, TeleVantage Call Center, TeleVantage Call Center Reporter, or TeleVantage Conference Manager, you need the following licenses:

- **ViewPoint license.** Used by the following:
 - TeleVantage ViewPoint
 - TeleVantage ViewPoint Web Access
 - Custom applications developed with the TeleVantage SDK that use a Client API session
 - TeleVantage Station Message Detail Recording (SMDR) Service

TeleVantage ViewPoint requires one ViewPoint license per PC. With one ViewPoint license, a user can log on to ViewPoint multiple times on a single PC.

Unlike TeleVantage ViewPoint, ViewPoint Web Access and Client API sessions are licensed per user, not per PC. Therefore, the same user can log on simultaneously to ViewPoint Web Access multiple times or to multiple Client API sessions with only one ViewPoint license, even on multiple PCs.

TeleVantage SMDR Service is an example of an application that uses a Client API session. Since SMDR Service needs to log on as the Administrator user, if that user is running TeleVantage ViewPoint, SMDR Service will use the same licence.

- **Call Center Agent license.** Required for each agent who is a member of a call center queue. A single licensed agent can participate in multiple call center queues.
- **Reporter license.** Required to run the TeleVantage Call Center Reporter. If you want to use the Reporter, even for non-queue reports such as call activity on trunks, you need a Call Center Reporter license.
- **Conference Manager license.** Required to run the optional TeleVantage Conference Manager add-on.

See “How TeleVantage licenses affect system behavior” on page D-1 for more information.

To see a license summary that shows the total number of each type of license currently installed on the TeleVantage Server, in the Administrator choose **Tools > System Settings**, and then click the Licenses tab. The **Stations** field under **License summary** displays the total number of licenses.

License requirements for the TeleVantage Add-ons are described in the documentation for each Add-on.

Note: You must supply a valid license serial number and verification key before you can use the corresponding TeleVantage component. For this reason, you may want to purchase additional licenses from your TeleVantage provider to allow for expected system growth so that you do not have to wait for a license the next time you expand your system.

Dialogic HMP license requirements

If you are using Dialogic HMP to provide telephony and voice resources on the TeleVantage Server, you must obtain and install a Dialogic HMP license that is adequate for your needs. For more information, see Chapter 3 in *Installing Dialogic Telephony Components*.

Administrator and ViewPoint requirements

PCs running the TeleVantage Administrator or ViewPoint must meet the following requirements:

- **Operating system.** The following operating systems can be used:

- Windows Server 2003, base release as well as SP1 and SP2
- Windows XP, base release as well as SP1 and SP2
- Windows 2000, SP4 or higher
- Windows NT Workstation or Server 4.0, SP6a or higher
- Windows Vista

Important: Windows 98 or ME can be used but are not recommended because of the multi-tasking performance limitations of those operating systems. Windows 98 or ME should not be used for users running high call volumes, such as operators, call center agents, or users running several applications besides TeleVantage ViewPoint.

Note: If your Administrator or ViewPoint PCs currently run or will run Windows XP Professional SP2 or Windows Server 2003 SP1 or R2, review the important information about Windows Firewalls in Appendix F, “Configuring TeleVantage for the Windows Firewall.”

- **Processor.** Minimum Pentium II 400 MHz.
- **Memory.** Minimum 128 MB RAM for Windows NT, 2000, 98, or ME. Minimum 256 MB RAM for Windows 2003 Server or Windows XP.

Important: This is the minimum memory required to support the TeleVantage Administrator or ViewPoint. More memory may be required if other applications are running on the same PC, if the user has thousands of contacts, voice messages, or call recordings, or if Call Logs are very large. To manage thousands of voice messages or call recordings, consider using the TeleVantage Archived Recording Browser instead of ViewPoint.

- **Disk space.** 10 MB free disk space.
- **Software.**
 - TCP/IP with Microsoft Network Client.
 - Internet Explorer 5 or later.
 - On Windows 98 PCs, Microsoft DCOM 98. See “Windows 98 PC requirements” on page 11-3.
- **Hardware.** Sound card and speakers to listen to voice messages and call recordings and to hear call announcements without using a phone.
- **Network connection.** TCP/IP connection to the TeleVantage Server. See “Network requirements” on page 3-12.

Note: A ViewPoint license is required in order to use TeleVantage ViewPoint. See “TeleVantage license requirements” on page 3-16 for more information.

Using a wheel mouse with TeleVantage

To scroll through ViewPoint or Administrator views using a Microsoft mouse with a mouse wheel, you must have installed the latest Microsoft Intellipoint driver.

To obtain the latest Intellipoint driver, go to the following location and search for a download using the keyword “Intellipoint”:

<http://www.microsoft.com/downloads>

TAPI Service Provider/Contact Manager Assistant requirements

The PC on which you want to install the TeleVantage TAPI Service Provider or the TeleVantage Contact Manager Assistant workstation applications must meet the following minimum requirements:

- **Operating system.** The following operating systems can be used:
 - Windows Server 2003, base release as well as SP1 and SP2
 - Windows XP Professional or Windows XP Home, base release as well as SP1 and SP2
 - Windows 2000, SP4 or higher
 - Windows NT Workstation or Server 4.0, SP6a or higher
 - Windows 98
 - Windows ME

Note: If your TAPI Service Provider or Contact Manager Assistant PCs currently run or will run Windows XP Professional SP2 or Windows 2003 Server 2003 SP1 or R2, review the important information about Windows Firewalls in Appendix F, “Configuring TeleVantage for the Windows Firewall.”

- **Software.** The Contact Manager Assistant requires the TAPI Service Provider. Neither the Contact Manager Assistant or the TAPI Service Provider require the presence of TeleVantage ViewPoint on the same PC.

The following contact managers are also supported:

- Act! 3.0, 4.0, 2000, and 6.0
 - GoldMine 4.0, 5.0, 6.5, and 6.7, and GoldMine Business Contact Manager
 - GoldMine FrontOffice 2000
 - Microsoft Outlook 98, 2000, XP, and 2003
- **Network connection.** TCP/IP connection to the TeleVantage Server. See “Supported integrated trunk and station board” in Chapter 4 in *Installing Dialogic Telephony Components*.

TeleVantage Web Services requirements

You can install TeleVantage Web Services on the same PC as the TeleVantage Server if you plan to use the IIS to support a small number of simultaneous connections for TeleVantage purposes only. However, if you plan to use the TeleVantage Web Services to support many TeleVantage users or for other high-volume Web-related activity, it is recommended that you install it on a separate networked PC from the TeleVantage Server.

Important: Be aware that installing IIS on the TeleVantage Server is a potential security risk. Installing TeleVantage Web Services and IIS on a separate server limits the impact of a security incident.

The PC on which you install TeleVantage Web Services must meet the following minimum requirements:

- **Operating system.** The following operating systems support more than 10 simultaneous users:
 - Windows Server 2003, base release as well as SP1 and SP2
 - Windows 2000 Server, SP4 or higher
 - Windows NT Server 4.0, SP6a or higher

The following operating systems support up to 10 users connected to the Web server simultaneously:

- Windows 2000, SP4 or higher
- Windows XP Professional or Windows XP Home, base release as well as SP1 and SP2
- Windows NT Workstation 4.0, SP6a or higher.

This operating system requires Microsoft Internet Information Server (IIS) 4.0 or greater. IIS 4.0 is part of the Windows NT 4.0 Option Pack.

Note: If your TeleVantage Web Services PCs currently run or will run Windows XP Professional SP2 or Windows Server 2003 SP1 or R2, review the important information about Windows Firewalls in Appendix F, “Configuring TeleVantage for the Windows Firewall.”

- **Processor.** Minimum Pentium II 400 MHz.
- **Memory.** 256 MB, plus ~ 15MB per simultaneous Viewpoint Web Access user. For example, if your office of 100 users expects 20 simultaneous Viewpoint Web Access connections, your Web Services PC should have $256 + (20 * \sim 15) = \sim 556\text{MB}$ of memory.

- **Disk space.** 200 MB.
- **Network connection.** TCP/IP connection to the TeleVantage Server. See “Network requirements” on page 3-12.

Note: A ViewPoint license is required in order to use TeleVantage ViewPoint Web Access. See “TeleVantage license requirements” on page 3-16 for more information.

Call Center Reporter requirements

The Call Center Reporter is installed along with TeleVantage ViewPoint. To run the TeleVantage Call Center Reporter you must have the following:

- A PC that meets the requirements listed in “Administrator and ViewPoint requirements” on page 3-18.
- Microsoft Excel 2000, Excel XP, or Excel 2003 installed on the PC. Excel 97 is not supported.
- A Reporter license. See “TeleVantage license requirements” on page 3-16 for more information.

TeleVantage Recording Archive Service requirements

The Recording Archive Service runs on a separate PC from the TeleVantage Server for reliability, since it has its own CPU, disk space, and database server requirements. Installing the Recording Archive Service on the TeleVantage Server will negatively impact TeleVantage Server performance, especially if you are archiving mailbox recordings in MP3 format. For more information, see “About mailbox recording file formats” in Chapter 12 in *Administering TeleVantage*.

The PC that you select as the archive server should have a very large amount of available disk space in order to support the voice message and call recording files to be archived. The archive server must be a local PC on your LAN; it cannot be remotely connected via the Internet.

- **Operating system.** You can use any of the operating systems supported by the TeleVantage Server (see page 3-2.)

Note that a PC using Windows XP, XP Professional, or Windows 2000 Professional is limited to supporting a maximum of 10 simultaneous connections by the Archived Recording Browser.)
- **Database server.** Install Microsoft MSDE or SQL Server on the archive server before installing the Recording Archive Service. You can use any of the database server options described in “TeleVantage database server requirements” on page 3-11.
- **Memory.** Enough memory to run Microsoft MSDE or SQL Server effectively (at least 512 MB.)

- **Disk space.** Be sure to provide enough disk space for the mailbox recordings that you will archive. See “Minimum disk space requirements” on page 3-6 for minimum disk space recommendations based on minutes of voice files.

Important: The hard drive used for archived recordings must be an NTFS-partitioned drive. Do not archive recordings to a FAT or FAT32-partitioned drive.

- **Backup.** A tape backup unit or a DVD burner is recommended to save old recordings
- **RAID.** Configure your archive server PC with RAID so that if a hard drive fails, you do not lose your valuable recordings.

Requirements for the TeleVantage Archived Recording Browser (which runs on other networked PCs) are the same as for the Administrator or Viewpoint, described on page 3-18.

TeleVantage SMDR Service requirements ---

TeleVantage Station Message Detail Recording (SMDR) Service requires the following on the TeleVantage Server:

- An available COM port, if your call accounting package requires one.
- TeleVantage ViewPoint.
- A ViewPoint license. SMDR Service can share a ViewPoint license with the Administrator user (see “TeleVantage license requirements” on page 3-16.)

Emergency dialing service requirements ---

TeleVantage supports both standard 911 and Enhanced 911 (E-911) emergency dialing services:

- Standard 911 calls does not require any additional hardware. All standard 911 calls use a TeleVantage trunk and go through the local carrier to the emergency dispatching center.
- All E-911 calls go through a special E-911 device and do not use a TeleVantage trunk. Typically, a dedicated trunk connects the E-911 device directly to the emergency dispatching center.

An E-911 call transmits the Automatic Number Identification (ANI) of the calling station as the TeleVantage station ID. This information allows the E-911 center at the telephone company to identify the location of the person who made the emergency call. For example, this information can include the specific floor and office in a large building from which the call was made.

If for any reason the emergency call cannot be placed using E-911 service, TeleVantage automatically places a standard 911 call to the emergency center using the local carrier.

Note: E-911 service is not supported on IP phones. Emergency calls made from IP phones are handled as standard 911 calls.

Contact your local telephone company to determine the emergency dialing services that are available in your area.

For details on how to set up standard 911 or E-911 emergency dialing in TeleVantage, see “Setting up emergency dialing” in Chapter 9 of *Administering TeleVantage*.

Enhanced 911 service requirements

After you determine that E-911 service is available from your phone company, you need to install and configure an E-911 device to make E-911 calls from TeleVantage stations.

Note: When configuring the E-911 device, enter each station number as a 4-digit number, adding a leading zero if necessary. For example, enter station 3 as 0003, station 123 as 0123, etc.

Once the E-911 device is installed and configured, use telephone cable to connect it to an available station port. Then, in the TeleVantage Administrator, assign one or more TeleVantage stations for the exclusive purpose of handling E-911 calls.

Each E-911 station:

- Must be physically connected to a port of the E-911 device
- Must be dedicated to the E-911 service, and cannot be shared with a user
- Can be any station that is not already assigned and that has a valid station license.

See *Administering TeleVantage* for more about setting up E-911 stations.

E-911 device suppliers

For more information about obtaining, installing, and configuring an E-911 device, contact:

Teltronics, Inc.

<http://www.teltronics.com>

800-877-8358 (U.S.)

941-753-5000 ext 7315

Section 1

Preparing for Installation

TRUNK OPTIONS AND REQUIREMENTS

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Introduction

Trunks are the phone lines that you order from the telephone company. This chapter describes requirements for the trunks and services that you can use with TeleVantage.

Note: Placing VoIP calls over the Internet or your private TCP/IP network does not require additional telephone company trunks. See “VoIP requirements” on page 4-10 for more information.

Connecting and configuring trunks

Connecting trunk lines to the Dialogic trunk boards in your TeleVantage Server PC is covered in Chapter 6 in *Installing Dialogic Telephony Components*. Once connected, you must configure your trunks via the TeleVantage Administrator. See Chapter 5 in *Administering TeleVantage* for details.

Using trunks with TeleVantage

There are two ways to use trunks with TeleVantage:

- Install one or more Dialogic telephony boards that provide trunk resources of the type that you want to use (analog, T1, E1, or ISDN BRI) on the TeleVantage Server. See Chapter 4 in *Installing Dialogic Telephony Components* for details.

Important: For the most up-to-date board specifications, refer to the Excel file **SupportedTelephonyBoards.xls**, included on Dialogic Drivers CD.

- Use a SIP gateway device with FXO/T1/E1/BRI ports to provide VoIP connectivity options to trunks. See “Using gateway PSTN/FXO ports with TeleVantage” on page 6-2 or “Using IP gateway T1/E1/BRI ports with TeleVantage” on page 6-3 for details.

Note: If you use a gateway, the trunks must meet the requirements of the gateway itself, which may be different than Dialogic trunk board requirements described in this chapter. See the documentation that came with your gateway for details.

Ordering services from your telephone company

You can order the following services when you order trunks from your telephone company.

- Caller identification. See page 4-3.
- Direct Inward Dial (DID). See page 4-3.
- Hunt groups. See page 4-4.
- Inbound-only and outbound-only trunks. See page 4-4.
- Emergency Dialing service. See page 4-4.
- Call waiting. See page 4-4.
- ISDN Two B-Channel transfer. See page 4-4.

Ordering caller identification

Inbound caller identification

Caller ID or Automatic Number Identification (ANI) is used by TeleVantage as a means of identifying incoming calls. Many useful TeleVantage features rely on caller identification. Customized greetings, customized routing lists, and call rules for individuals all use caller identification.

It is highly recommended that you order a caller identification service for all of your trunk lines.

- For analog trunks, order Caller ID.
- For T1, E1, ISDN BRI, or analog DID trunks, order ANI.

Outbound caller identification

TeleVantage allows you to specify custom outbound Caller ID information on ISDN trunks.

Not all ISDN providers support custom numbers as outbound Caller ID—some restrict you to using only registered numbers for your trunks, and some do not allow you to set custom Caller ID at all. If you want to specify custom numbers as outbound caller ID on your ISDN trunks, ask your ISDN provider if they support custom calling party numbers, sometimes referred to as custom Caller ID or customer-defined Caller ID.

For more about configuring outbound Caller ID, see *Administering TeleVantage*.

Ordering Direct Inward Dial

When you order DID, your site is given a block of sequential telephone numbers. You then assign these numbers to individual phones within TeleVantage. In this way callers can dial users assigned to those phones directly, without having to go through an auto attendant or operator. DID generally transmits the last three or four digits of the phone number dialed. TeleVantage recognizes the DID digits and routes the call to the appropriate user or auto attendant. DID enables you to set up private phone numbers for users without having to dedicate trunks.

Another service, Dialed Number Identification Service (DNIS) works in the same way as DID, but is used for toll-free lines such as 800, 877, and 888 numbers. In TeleVantage, DID refers to both DID and DNIS.

To use DID, you must configure your TeleVantage trunks to recognize it. For instructions, see *Administering TeleVantage*.

Ordering hunt groups

Trunks used with TeleVantage must be configured by the phone company in a terminated hunt group so that calls roll over to the next trunk if the first one is busy.

In this arrangement, incoming calls try the lowest numbered phone line first. If that line is busy, they try the next higher phone line and continue trying lines until a free line is found. If you will be using the same trunks for both inbound and outbound calls, you must configure dialing services in the Administrator so that on outbound calls, TeleVantage starts searching for a free line from the highest numbered trunk. This configuration helps to limit glare conflicts on lines.

Ordering inbound- and outbound-only trunks

Inbound-only trunks and outbound-only trunks do not affect TeleVantage performance, but they may be of benefit in your organization. If you order them, you must configure them in the Administrator. See *Administering TeleVantage* for details.

Ordering emergency dialing service

Consult your local phone company to determine the emergency dialing services that are available in your area. For information about using Enhanced 911 service, which is designed to help the local emergency dispatching center identify the precise location of a caller making an emergency call, see “Enhanced 911 service requirements” on page 3-23.

Ordering call waiting

It is strongly recommended that you do not order call waiting on analog trunk lines. TeleVantage provides its own call waiting tone to users on incoming calls. If telephone company call waiting tones arrive as well, they can confuse users.

Ordering ISDN Two B-Channel Transfer service

With ISDN PRI trunks using the NI2 protocol, Two B-Channel Transfer allow you to transfer incoming calls to external numbers without consuming TeleVantage trunks while the external callers are connected. For more information, see *Administering TeleVantage*, Chapter 5, “Using Two B-Channel Transfer.”

Note: When ordering this service from the phone company, TeleVantage does not require the “Notify on transfer” option.

Analog trunk requirements

TeleVantage supports standard loop-start analog trunks. TeleVantage can also use Centrex trunks or operate behind a PBX that is connected to the central office at the telephone company.

Additional required hardware for analog service

No additional hardware is required for analog or Centrex/PBX trunks.

To support analog DID service, you need a DID interface unit which sits between TeleVantage and your phone company. One DID interface unit can support up to 4 analog DID trunks. For information about DID interface units that work with TeleVantage, see your TeleVantage provider.

T1 trunk requirements

TeleVantage supports two protocols over T1 lines:

- ISDN
- Robbed Bit. (Robbed bit signaling is not supported on Dialogic DM3 ISDN boards. For more information about specific boards, see the Notes to the “Basic board information” table in Appendix E in *Installing Dialogic Telephony Components*.

T1 carrier requirements

The following table lists the T1 configuration requirements for TeleVantage. You must supply this information to your phone company when you order T1 service.

T1 Requirements for TeleVantage	
Framing Type	D4 Superframe or Extended Superframe
Interface	DSX-1
Supervisory signal	2- or 4-wire E&M
Wink	Wink and double wink
Line coding/Framing	For D4 Superframe: AMI For Extended Superframe: B8ZS
Digit signaling	Robbed Bit: DTMF or MF ISDN: DTMF

T1 ISDN PRI Protocols

TeleVantage currently supports the following ISDN PRI protocols over T1 lines. The drivers for these protocols are installed automatically with Dialogic SR 6.0. Contact your TeleVantage provider if your protocol is not listed.

- National ISDN 2 (NI2). NI2 is required if you want to use the Two B-Channel Transfer feature (See *Administering TeleVantage*, Chapter 5, “Using Two B-Channel Transfer.”). Even if you are not using Two B-Channel Transfer, NI2 is preferred if your provider offers multiple protocols.
- 4ESS
- 5ESS
- DMS
- QSIG
- CR13
- INS1500

Additional required hardware for T1 service

Robbed Bit T1 service requires the following:

- **Channel Service Unit (CSU).**
- **Cable.** Connects the CSU to the Dialogic board, provided by the CSU vendor.

ISDN T1 service requires the following:

- **Network Termination Unit (NTU).** Most ISDN installations include an NTU from the phone company, so you should ask your phone company for details. Connect the NTU between TeleVantage and the digital line coming in from the phone company.

If you do not have an NTU available, you can use a standard Channel Service Unit (CSU) that handles Extended Superframe Format (ESF) instead.

- **Network Termination type 1 adapter (NT1).** Typically supplied by the phone company.
- **Cable.** Connects the NTU to the Dialogic board. When ordering one from your supplier, specify the following:
 - **Recommended cable type.** Twisted-pair, in which each of the two pairs is shielded and the two pairs also have a common shield.
 - **Connectors.** The cable connects to the board via a RJ-45 Modular connector on the front or rear bracket of the board.

Connect the CSU or NTU between TeleVantage and the digital line coming in from the phone company.

Note: A Digital Service Unit (DSU) is not required because the Dialogic boards supply DSU functionality.

U.S. local and long-distance service

Two kinds of T1 trunks are available from phone companies in the United States, local and long-distance.

Local T1 trunks

Local T1 trunks operate similarly to local analog lines, in that local calls are free, and you can place long-distance calls using the long-distance carrier of your choice.

Important: It is recommended that you not use local T1 lines because they do not supply ANI Caller ID information used by TeleVantage to recognize contacts when they call. Most incoming calls from contacts on local T1 trunks will display as “Unknown” in the Call Log and in the ViewPoint Call Monitor and Voice Messages views. Also, call rules for external contacts will not work.

Local T1 trunks support DID, and you can order blocks of DID numbers for each T1 line.

Long-distance T1 trunks

Long-distance T1 trunks handle local and long-distance calls through the same carrier, so that all outbound calls are charged at the rate charged by your long-distance carrier.

Long-distance T1 trunks do not support outbound toll-free calls, for example, to 411 or 800 and 888 numbers, and require that you dial the area code for all numbers, even those in your local area.

Long-distance T1 trunks provide ANI, which enables full TeleVantage functionality. DID is supported on incoming calls only if the line is used for toll-free calling, for example, 800 or 888 numbers.

Because of the higher cost and limitations on outbound calls, long-distance T1 lines are recommended for inbound-only trunks, for example, in call centers.

E1 trunk requirements

TeleVantage supports both kinds of E1 service:

- ISDN
- CAS. (CAS signaling is not supported on Dialogic DM3 ISDN boards. For more information about specific boards, see the Notes to the “Basic board information” table in Appendix E in *Installing Dialogic Telephony Components*.)

Note: The Dialogic drivers do not support E1 and T1 trunks on the same TeleVantage Server.

E1 carrier requirements

TeleVantage currently supports the following ISDN PRI protocols over E1 lines. The drivers for these protocols are automatically installed with Dialogic SR 6.0 if you select the required features as described in “Installing Dialogic SR 6.0” in Chapter 7 in *Installing Dialogic Telephony Components*. Contact your TeleVantage provider if your protocol is not listed here.

E1 ISDN PRI protocols

- CTR4 (ETSI 300), also known as EuroISDN
- Net5
- QSIG
- Austel
- DASS2
- ITR6
- PTC132
- VN3
- VN4

E1 CAS protocols

The Dialogic GlobalCall 4.0 Protocols for E1/CAS are installed with Dialogic SR 6.0. You specify the protocol to use when you add the E1 CAS span in the TeleVantage Administrator, as described in Chapter 5 of *Administering TeleVantage*.

Additional required hardware for E1 service

No additional hardware is required to support E1 CAS service.

To support E1 ISDN service, you need the following:

- **Network Termination Unit (NTU).** Most ISDN installations include an NTU from the phone company, so you should ask your phone company for details. Connect the NTU between TeleVantage and the digital line coming in from the phone company.

If you do not have an NTU available, you can use a standard Channel Service Unit (CSU) that handles Extended Superframe Format (ESF) instead.

- **Network Termination type 1 adapter (NT1).** Typically supplied by the phone company.
- **Cable.** Connects an NTU to the Dialogic board. When ordering one from your supplier, specify the following:
 - **Recommended cable type.** Twisted-pair, in which each of the two pairs is shielded and the two pairs also have a common shield.
 - **Connectors.** The cable connects to the board via a RJ-45 Modular connector on the front or rear bracket of the board.

Note: A Digital Service Unit (DSU) is not required because the Dialogic boards supply DSU functionality.

ISDN BRI trunk requirements

TeleVantage supports ISDN BRI trunks.

Note: Connecting BRI devices such as BRI phones to Dialogic ISDN BRI boards is not supported.

ISDN BRI carrier requirements

TeleVantage supports the following ISDN BRI protocols. The drivers for these protocols are provided on the TeleVantage Drivers CD. Contact your TeleVantage provider if your protocol is not listed here.

ISDN BRI Protocols

- 5ESS (ATT 5ESS BRI)
- DMS100 (Northern Telecom DMS100 BRI)
- NTT (Japanese INS-Net 64 BRI)
- NET3 (EuroISDN BRI)
- NI1 (National ISDN 1)
- NI2 (National ISDN 2)

Additional required hardware for ISDN BRI service

To support ISDN BRI service, you need the following:

- **Dialogic shielded breakout box.** Part number 89-0592-001.
- **Dialogic SCSI-3 BRI breakout box cable.** Part number 99-2280-003.
- **Network Termination type 1 adapter (NT1).** Typically supplied by the phone company. Connect the NT1 between TeleVantage and the digital line coming in from the phone company.

All BRI/x-PCI boards require an NT1.

- **Cable.** Connects the NT1 to the Dialogic board. See the Quick Install Card included with your Dialogic BRI board for details. BRI/x-PCI boards require a special cable with pins 3 and 4 crossed, pins 5 and 6 crossed, and pins 1, 2, 7, and 8 wired straight through.

Shared voice resources

Unlike other Dialogic trunk boards, the BRI boards do not supply any voice resources to handle auto attendants, voice mail access, or other TeleVantage features. To use BRI boards with TeleVantage, you must install extra Dialogic boards that provide shared voice resources. See “Supported voice resource boards” in Chapter 4 in *Installing Dialogic Telephony Components* for a list of Dialogic boards that provide shared voice resources.

VoIP requirements

TeleVantage supports two protocols for voice communication over the Internet.

- **Session Initiation Protocol (SIP).** Developed by the Internet Engineering Task Force (IETF) specifically for Internet use, SIP is a well-accepted standard for Voice over Internet Protocol (VoIP) communication. SIP enables VoIP communication with other SIP-compatible devices, including SIP desktop phones or softphones, SIP services, and SIP carriers. For more information, see Chapter 14 in *Administering TeleVantage*.
- **H.323.** Developed by telephone companies, the H.323 protocol enables communication with H.323-compatible devices, such as some VoIP phones, and H.323-based terminals such as Microsoft NetMeeting. For more information, see Chapter 15 in *Administering TeleVantage*.

Placing VoIP calls over the Internet or your private TCP/IP network does not require additional telephone company trunks. Instead, Dialogic Internet telephony resources must be installed on the TeleVantage Server. Telephony resources can be provided in two ways as described on page 3-3.

VoIP also requires the following:

- The TeleVantage Server PC must have an always-on, preferably high-speed connection to the Internet.
- You must use a static IP address for the NIC that handles VoIP RTP audio traffic on the TeleVantage Server PC. For more information, see “Network interface card requirements” on page 3-9.

VoIP features in TeleVantage

TeleVantage supports VoIP in the following ways. See “Configuring TeleVantage Internet telephony” in Chapter 14 in *Administering TeleVantage* for configuration requirements.

- **TeleVantage Enterprise Gateways.** By configuring TeleVantage Enterprise Gateways on two or more TeleVantage Servers, users on one TeleVantage Server can make calls over the Internet or your private TCP/IP network as if they were on the other TeleVantage Server. See “Connecting two Servers using TeleVantage Gateways” in Chapter 15 in *Administering TeleVantage*.
- **SIP carrier support.** SIP carriers, also known as Internet telephony service providers (ITSPs), provide a VoIP connection to the Public Switched Telephone Network (PSTN) for a nominal monthly fee. (An example is www.broadvoice.com.)

SIP carriers provide customers with real phone numbers, and deliver calls to those numbers via VoIP. Likewise, calls to the SIP carrier over VoIP ring PSTN users as calls coming from those telephone numbers. With a SIP carrier, you do not need a PSTN trunk on-site in order to place and receive calls, although it is wise to have one in case you encounter a problem connecting to the SIP carrier over the Internet.

If you are ordering a SIP account from www.broadvoice.com, tell them that you are using a 'General SIP device.' TeleVantage requires no specific settings to work with BroadVoice.

For information on enabling communications with a SIP carrier via the TeleVantage Administrator, see "Using SIP Servers" in Chapter 14 in *Administering TeleVantage*.

- **SIP gateways.** SIP gateways are devices that provide the following types of ports. For more information on supported gateways and requirements, see Chapter 6.
 - PSTN/FXO ports connect your VoIP network to the Public Switched Telephone Network (PSTN) via analog trunks.
 - Station/FXS ports allows analog phone users to place and take VoIP calls.
 - T1, E1, and BRI ports connect your VoIP network to the PSTN via T1, E1, or BRI trunks.

PHONE OPTIONS AND REQUIREMENTS

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Introduction

This chapter discusses the wide variety of phones that you can use with TeleVantage.

For instructions on how to connect your phones, see Chapter 6 in *Installing Dialogic Telephony Components*.

For information on how to configure TeleVantage for your phones and phone features, see the following in *Administering TeleVantage*:

- Chapter 7, “Managing Stations”
- Chapter 14, “Configuring SIP Internet Telephony”

Supported phones

TeleVantage supports the following phone types:

- Analog phones and ADSI display phones. See page 5-2.
- SIP desktop phones and softphones. See page 5-6.
- H.323 phones. See page 5-10.
- Digital phones. See page 5-11.

Using analog phones with TeleVantage

TeleVantage supports standard analog touchtone telephones (also called 2500 sets), including ADSI phones and CLASS features. Multiline analog phones can also be used, but line use indicator lights may not perform correctly on some models.

There are two ways to use analog phones with TeleVantage:

- Install one or more Dialogic telephony boards that provide analog phone resources on the TeleVantage Server. See “Supported analog station boards” in Chapter 4 in *Installing Dialogic Telephony Components* for details.
Important: For the most up-to-date board specifications, refer to the Excel file **SupportedTelephonyBoards.xls**, included on the root directory of the Dialogic Drivers CD.
- Use a SIP gateway device with FXS ports to allow analog phone users to place and take VoIP calls. See “Using gateway station/FXS ports with TeleVantage” on page 6-3 for details.

Tested ADSI phones

TeleVantage supports Analog Display Service Interface (ADSI) phones. In addition to the CLASS features described in “Tested analog phones” on page 5-4, ADSI phones can provide soft-button menu access to many TeleVantage functions (for a complete feature list, see the ADSI script manufacturer for your phone.) ADSI phones also support the following TeleVantage features:



- Voice-first answering
- Intercom
- Paging

See *Administering TeleVantage* and *Using TeleVantage* for more about setting up and using these features.

Important: You may need to update the script that is running on your ADSI phone. To do this, contact your phone supplier.

The following ADSI phones can be used with TeleVantage.

Brand	Model	CLASS features
Vertical	Intellivoice TS-ML298i ¹	Caller ID Caller ID on Call Waiting Message Waiting Indicator
		
Vertical	Aastra Power Touch 480e	Caller ID Caller ID on Call Waiting Message Waiting Indicator
		

Brand	Model	CLASS features
Vertical	Fanstel ST-2118	Caller ID Caller ID on Call Waiting Message Waiting Indicator
		
CybioLink	P-I CY-2135-B CY-2135-BH	Caller ID Caller ID on Call Waiting Message Waiting Indicator
		

- ¹. Includes a TeleVantage ViewPoint Add-In that allows users to configure the buttons of the phone via a GUI.

Tested analog phones

TeleVantage supports plain analog phones as well as analog phones with the following CLASS features:

- Caller ID
- Caller ID on Call Waiting
- A CLASS Bellcore message waiting indicator

Some CLASS feature phones require you to set a phone switch or option in order to use CLASS features. Refer to the documentation that came with your phone for any setup steps required to activate these features.

Note: Message waiting indicators other than CLASS Bellcore are not supported with TeleVantage. For example, the message waiting indicator on some analog phones is set via a line voltage change, and that is not supported. When choosing a phone for use with TeleVantage, make sure that the phone supports FSK message waiting indication (9v message waiting indication is not supported.) Two TeleVantage Windows registry settings—**CID_FSK_FORMAT** and **VMWI_FSK_FORMAT**—specify the specific FSK format used to send Caller ID or visual message waiting information to CLASS phones. See *Administering TeleVantage* for more information.

The following analog phones can be used with TeleVantage. Other analog phones not listed below should work with TeleVantage as long as they conform to the requirements previously described. Contact your TeleVantage provider for more information about other analog phones to use with TeleVantage.

Brand	Model	CLASS features
Vertical	Aastra 9110	n/a
	Aastra 9116	Caller ID Caller ID on Call Waiting Message Waiting Indicator
	Fanstel BT118G	n/a
	Fanstel ST118B	Caller ID Caller ID on Call Waiting Message Waiting Indicator
Aastra	9316CW	Caller ID Caller ID on Call Waiting Message Waiting Indicator
	Maestro 900 DSS	Caller ID Caller ID on Call Waiting
AT&T	956	Caller ID
	957	Caller ID on Call Waiting
	960	Message Waiting Indicator
	951	Message Waiting Indicator
	9130 Cordless	Caller ID Caller ID on Call Waiting
Sony	Caller ID IT70	Caller ID Caller ID on Call Waiting
Radio Shack	System 1350 Caller ID Speakerphone (430-0987)	Caller ID Caller ID on Call Waiting Message Waiting Indicator
Vodavi	STARPLUS 2706 (Caller ID)	Caller ID
		Caller ID on Call Waiting
		Message Waiting Indicator

Using SIP phones with TeleVantage

TeleVantage supports VoIP desktop and softphones that conform to the Session Initiation Protocol (SIP) standard. Developed by the Internet Engineering Task Force (IETF) specifically for Internet use, SIP is a well-supported standard for Voice over Internet Protocol (VoIP) communication.

Both SIP desktop and SIP softphones have been tested with TeleVantage. To use SIP phones with TeleVantage, you must provide Dialogic VoIP resources on the TeleVantage Server that meet the requirements in “VoIP requirements” on page 4-10.


For more information about using SIP phones with TeleVantage, see *Administering TeleVantage*, Chapter 14, “Configuring Internet Telephony Support” and Appendix E, “Using an IP Phone with TeleVantage.”



For troubleshooting tips, see Appendix H, “Troubleshooting VoIP.”


Note: Unlike CLASS (see page 5-4) or ADSI (see page 5-3) features which take time to send to analog phones, these features are instantaneous on SIP phones.

Tested SIP desktop phones

The following SIP desktop phones can be used with TeleVantage. Other SIP desktop phones not listed below should work with TeleVantage as long as they conform to the requirements previously described. Contact your TeleVantage provider for more information about other SIP desktop phones to use with TeleVantage.

Brand	Model	Version	Features
Vertical 	Aastra 480i IP Phone (multi-line ¹)	1.2.5.316, 1.4	Caller ID
			Caller ID on call waiting
			Call Log
			Conference button ²
			Do Not Disturb
			Flash button
			Hold button
			Intercom button
			Message Retrieval button
			Message Waiting Indicator
			Mute button
			Paging
			Park
			Redial button
			Speakerphone button
			Speed Dial
			Transfer button
			Voice-first answering



Brand	Model	Version	Features
Vertical 	Aastra 9133i IP Phone (multi-line ¹)	1.2.5.316, 1.4	Caller ID Caller ID on call waiting Call Log Conference button ² Do Not Disturb Flash button Hold button Intercom button Message Retrieval button Message Waiting Indicator Mute button Paging Park Redial button Speakerphone button Speed Dial Transfer button Voice-first answering
Vertical 	Aastra 9112i IP Phone (single-line)	1.2.5.316, 1.4	Caller ID Caller ID on call waiting Call Log Conference button ² Do Not Disturb Flash button Hold button Intercom button Message Retrieval button Message Waiting Indicator Mute button Paging Park Redial button Speakerphone button Speed Dial Transfer button Voice-first answering

Brand	Model	Version	Features
Vertical 	Aastra 480i CT IP Phone with cordless handset and base station (multi-line ³)	1.2.5.316	Caller ID Caller ID on call waiting Call Log Conference button ² Do Not Disturb Flash button ⁴ Hold button Intercom button ⁵ Message Retrieval button Message Waiting Indicator Mute button Paging Park Redial button ⁶ Speakerphone button Speed Dial Transfer button Voice-first answering ⁵

1. Requires one Internet trunk per call.
2. Supports 3-way calling, including combining IP and PSTN calls.
3. Simultaneous calls on the cordless handset and base unit are not supported. If there is an active call on the handset and the user attempts to place a new call via the base unit on another line, the call is not made, and the first call is placed on hold.
4. The Flash button on the cordless handset is not supported—press ** to access the TeleVantage telephone commands on the handset.
5. Incoming intercom and voice-first answering are supported via the speaker on the base unit, not the cordless handset.
6. Pressing the Redial button on the cordless handset redials the last number dialed via the base unit.

Tested SIP softphones

The following SIP softphones can be used with TeleVantage. Contact your TeleVantage provider for more information about other SIP softphones to use with TeleVantage.

Manufacturer	Model	Version	Features
CounterPath Solutions, Inc. http://www.counterpath.com/index.php?menu=products&smenu=eyebeam	eyeBeam Audio-only ^{1 2 3 4}	1.1, 1.5	Call Forwarding Caller ID Caller ID on call waiting Call Log Call Waiting Do Not Disturb Hold Message Waiting Indicator Mute Redial Speakerphone Speed Dial Transfer
			
CounterPath Solutions, Inc. http://www.counterpath.com/index.php?menu=Products&smenu=PPC	X-PRO SIP Softphone for Pocket PC	2.2	Call Forwarding Caller ID Caller ID on call waiting Call Log Call Waiting Do Not Disturb Hold Message Waiting Indicator Mute Redial Speakerphone Speed Dial Transfer
			

1. Only supported on PCs running Windows 2000, XP and 2003. Windows 98 and NT are not supported.
2. While many headsets work with the Xten eyeBeam softphone, the following headsets are recommended: from Plantronics (<http://www.plantronics.com>), the CS50-USB VoIP Headset (cordless), DSP-500 USB Folding Headset (corded), and DSP-400 USB Multimedia Headset (corded); from GN Netcom (<http://www.gnnetcom.com>), the GN 8120 USB digital USB-to-headset adapter (corded; compatible with any GN Netcom QD Headset.)
3. Instant messaging and video features on SIP softphones are not supported in TeleVantage.
4. Requires one Internet trunk per call.

Using H.323 phones with TeleVantage

TeleVantage supports VoIP phones that conform to the H.323 internet telephony standard, including H.323-based terminals such as Microsoft NetMeeting. Developed by telephone companies, the H.323 protocol enables communication with H.323-compatible devices, such as some VoIP phones.

Note: Unlike CLASS features (see page 5-4) which take time to send to analog phones, these features are instantaneous on H.323 phones.


For more information about using H.323 phones with TeleVantage, see *Administering TeleVantage*, Chapter 14, “Configuring Internet Telephony Support” and Appendix E, “Using an IP Phone with TeleVantage”.


To use H.323 phones with TeleVantage, you need to provide Dialogic VoIP resources on the TeleVantage Server that meet the requirements in “VoIP requirements” on page 4-10.

Tested H.323 phones

The following H.323 phones can be used with TeleVantage. Other H.323 phones not listed below should work with TeleVantage as long as they conform to the H.323 standard. Contact your TeleVantage provider for more information about other H.323 phones to use with TeleVantage.

Brand	Model	Version	Features
Uniden http://www.uniden.com/product.cfm?product=UIP300&filter=bp1 UIP 300:	UIP 300	1.05, 1.08	Call Forwarding Caller ID Call Waiting Do Not Disturb Hold Message Waiting Indicator Multi-line Support (up to 2) Mute Redial Transfer Speakerphone Speed Dial



Brand	Model	Version	Features
Polycom http://www.polycom.com/products_services/1,1443,pw-34-182-215,00.html SoundPoint 500:	Soundpoint 500		Caller ID
			
Microsoft	NetMeeting	Included with Windows	Caller ID

Using digital phones with TeleVantage

TeleVantage supports digital phones via the Toshiba Strata CS-DKTU digital station board.

Important: For the most up-to-date board specifications, refer to the Excel file **SupportedTelephonyBoards.xls**, included on the root directory of the Dialogic Drivers CD.

Digital phone features

When used with TeleVantage, the digital phones listed in the table on page 5-13 behave as TeleVantage digital stations, and do not emulate the exact same digital phone behavior supported by each phone's proprietary PBX. For specifics on configuring and using these phones with TeleVantage, see Chapter 7 in *Using TeleVantage*.

When used with TeleVantage, digital phones support the following features:

- Caller ID
- Caller ID on Call Waiting
- Message Waiting Indicator¹
- Voice-first answering
- Intercom
- Flash
- Paging
- Supported feature keys:



- Access Voice Mail
- Account code
- Call Forwarding (CFD)
- Call Menu
- Conference/Transfer (Cnf/Trn)
- Do Not Disturb (DND)
- Flash
- Hold/Retrieve²
- Park/Unpark
- Phone Page
- Primary Directory Numbers (PDNs)
- Record Call
- Redial
- Release
- Secondary Directory Numbers (SDNs)
- Send to Voice Mail (SVM)
- Set Personal Status
- Speaker²
- Speed Dial (SD) and Busy Lamp Field (BLF)
- Take Call

1. For digital phones that do not have a fixed Message Waiting Indicator, TeleVantage uses the LED associated with the Access Voice Mail feature key (if one has been assigned) to indicate that a new voice message has been received.
2. For digital phones that do not have a fixed Hold/Retrieve and/or Speaker button, you can assign these features to one of the phone's programmable buttons.

Note: Unlike CLASS (see page 5-4) or ADSI (see page 5-3) features which take time to send to analog phones, these features are instantaneous on digital phones.

Tested digital phones

The following digital phones can be used with TeleVantage. Contact your TeleVantage provider for more information about other digital phones to use with TeleVantage. A representative phone from each phone family is pictured..

Brand	Model
Toshiba	
	DKT-2001
	DKT-2010-S
	DKT-2010-SD
	DKT-2020-H
	DKT-2020-SD (pictured)
	DKT-3001 Single-line phone
	DKT-3010-S 10-button multi-line speakerphone
	DKT-3010-SD 10-button multi-line speakerphone w/ LCD display
	DKT-3020-SD 20-button multi-line speakerphone w/ LCD display (pictured)
Note: When used with TeleVantage, these phones are supported in 2000 emulation mode only. The extra-wide display and extra feature buttons are not used.	

Wiring requirements

Analog phone and digital phone wiring requirements

Analog phones (plain analog and ADSI) and digital phones are connected to the TeleVantage Server using standard 2-wire telephone cable. Four-wire cabling can be used if it is already in use at your facility. All connections to the Server must be terminated with RJ-11 connectors.

Important: If you are using Toshiba Strata DKT-series digital phones, there cannot be any signal on the second pair of wires in an existing 4-wire scenario. If there is any signal or voltage on the second pair, the Toshiba phones will not work. Toshiba phones are not sensitive to polarity on the line—if the wires are swapped, a Toshiba phone will still work properly.

Maximum cabling distances

The maximum cabling distance between an analog phone and an HDSI/x analog station board is one mile (5280 feet.) The maximum cabling distance between an analog phone and a DISI/x analog station board or DI0408LSAR2 integrated trunk and station board is 3500 feet. The maximum cabling distance between a Toshiba digital phone and the Toshiba Strata CS-DKTU station board is 1000 feet.

SIP phone, H.323 phone, and IP gateway wiring requirements

IP phones and IP gateways are connected to your network via an Ethernet connection. Your TeleVantage Server must also be connected to your network via Ethernet. For devices connected to an IP gateway, see the wiring requirements in the documentation provided by the IP gateway manufacturer.

Replacing an existing PBX

If you are replacing an existing PBX with TeleVantage, the information in this section may apply to you.

Wiring punch down blocks to TeleVantage

Punch down blocks are commonly used to terminate 50-pair cables from offices to the wiring closet at the company location, and from the wiring closet to the telephone company. Each phone connection from this punch down block—that is, each station or trunk—must be connected to a wire terminated with an RJ-11 connector in order to be connected to the Dialogic station breakout box or trunk board.

Wiring patch panels to TeleVantage

If your offices are wired to patch panels, you can use a standard phone cord with RJ-11 connectors from the patch panel to the Dialogic station breakout box. This method assumes that the patch panel accepts RJ-11 connectors. Network patch panels generally use RJ-45 connectors but often accept RJ-11 connectors as well.

Replacing telephones connected directly to trunk lines

If you are not replacing a PBX and your office phones are connected directly to trunk lines, the office may need to be rewired. Trunk lines must come to a central location at the TeleVantage Server and station lines must be wired from the TeleVantage Server to the offices.

Using TeleVantage with a paging system

There are several ways to use TeleVantage with a paging system:

- Use the TeleVantage *15 telephone command to page a group of users over each user's speakerphone simultaneously. This option does not require an external paging system or overhead speaker. See *Using TeleVantage* for more information.
- Use an external paging device. See page 5-15.
- Create an overhead paging system with hands-free answering. See page 5-15.

Using an external paging device with TeleVantage

You can attach an external paging device to a station or trunk port. For a station port, you must then activate the hands-free feature for that extension as described in *Administering TeleVantage*.

For more information about standard PBX paging systems from various manufacturers, contact:

Graybar Electric Company, Inc.
1-800-472-9227
<http://www.graybar.com>

Creating an overhead paging system with hands-free answering

You can create a paging system by connecting a hands-free extension (an extension at which hands-free answering is enabled) to an overhead speaker. To broadcast an announcement over the paging system, a user dials the extension and is connected immediately to the speaker. For more about configuring an extension for hands-free answering to create an overhead paging system, see Chapter 7 in *Administering TeleVantage*.

Section 2

Performing the Installation

GATEWAY OPTIONS AND REQUIREMENTS

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Introduction

TeleVantage supports VoIP gateway devices using the SIP protocol to provide a wide variety of VoIP connectivity options for analog, T1, E1, or BRI trunks, and for analog devices including analog phones and fax machines. You can use gateways no matter which method you use to provide telephony resources on the TeleVantage Server (Dialogic HMP software or Dialogic boards.)

This chapter lists supported gateways that provide the following types of ports:

- Public Switched Telephone Network (PSTN)/FXO ports
- Station/FXS ports
- T1/E1/BRI ports

For requirements, see page 6-4.

Using gateway PSTN/FXO ports with TeleVantage

The PSTN/Foreign eXchange Office (FXO) ports on IP gateways convert PSTN calls to VoIP calls and vice versa. Gateways that provide FXO ports have one or more PSTN interfaces for analog trunks, and also an ethernet interface to connect to your router or other data networking equipment.

Once the gateway's FXO ports and TeleVantage are properly configured, the ports appear as TeleVantage SIP servers through which users can place and receive PSTN calls. A TeleVantage user can make or receive regular calls via the gateway and not realize that the calls are being transmitted using VoIP.

TeleVantage can also act as a full-featured PSTN/FXO gateway when Dialogic analog and Internet trunk boards are installed on the TeleVantage Server. An advantage of using a third-party gateway is that you can have your TeleVantage Server in one location, and connect to the PSTN at any remote location using VoIP. Using this approach, your TeleVantage Server could be in Boston and the gateway could be initiating and receiving calls in a remote office in San Francisco.

Tested gateways that provide FXO ports

The following gateways have been tested with TeleVantage:

Manufacturer's product Web site	Type	Model	Ports
Sipura Technology Inc. http://www.sipura.com/products/index.htm	Analog	SPA-3000 ¹	1 analog trunk (FXO) port
Quintum Technologies, Inc. http://www.quintum.com/enterprise/en_products.html	Analog	See your TeleVantage provider for the models supported and their specific capabilities.	

¹ The Sipura SPA-3000 was tested with software version 3.1.7 and hardware version 2.0.1.

Using gateway station/FXS ports with TeleVantage

The station/Foreign eXchange Station (FXS) ports on IP gateways connect analog phones to the Internet or your private TCP/IP network via an Ethernet connection, allowing analog phone users to place and take VoIP calls. Gateways that provide FXS ports are also known as analog telephone adaptors (ATAs.)

Once the FXS ports and TeleVantage are properly configured, a TeleVantage user can use an analog phone as a TeleVantage station without consuming an analog station resource on the TeleVantage Server.

Tested gateways that provide FXS ports

The following gateways have been tested with TeleVantage:

Manufacturer's product Web site	Type	Model	Ports
Sipura Technology Inc. Analog Telephone Adaptors http://www.sipura.com/products/index.htm	Analog	SPA-1001 SPA-2000 SPA-2100 SPA-3000 ¹	1 or 2 analog station (FXS) ports
Quintum Technologies, Inc. http://www.quintum.com/enterprise/en_products.html	Analog	See your TeleVantage provider for the models supported and their specific capabilities.	

¹. The Sipura SPA-3000 was tested with software version 3.1.7 and hardware version 2.0.1.

Using IP gateway T1/E1/BRI ports with TeleVantage

T1, E1, and BRI ports connect TeleVantage Internet trunks and the PSTN via T1, E1, or BRI lines. Once the T1, E1, and BRI ports and TeleVantage are properly configured, the ports appear as TeleVantage SIP servers through which users with SIP desktop phones or SIP softphones can place and receive PSTN calls.

Tested gateways that provide T1/E1/BRI ports

The following gateways have been tested with TeleVantage:

Manufacturer's product Web site	Type	Model	Ports
Quintum Technologies, Inc. http://www.quintum.com/enterprise/en_products.html	Digital	See your TeleVantage provider for the models supported and their specific capabilities.	

Gateway requirements

The following are required to use gateways with TeleVantage:

- **For any gateway:**

- Configure TeleVantage for SIP according to the instructions in Chapter 14 in *Administering TeleVantage*.
- Install and configure the gateway.

For information on how to set up and connect a gateway, see the manufacturer's documentation. For instructions on how to configure a Sipura gateway for use with TeleVantage, see Chapter 14 in *Administering TeleVantage*.

- **For FXO/T1/E1/BRI ports.** PSTN trunks and services that meet the requirements described in Chapter 4.

Important: FXO, T1, E1, and BRI ports simply provide connectivity between TeleVantage Internet trunks and the PSTN. You must still order PSTN trunks and related services from your phone company before you can connect them to the gateway.

- **For FXS ports.** Analog devices, including analog phones and fax machines, that meet the requirements in Chapter 5.

Note: When analog phones are connected to FXS ports, only CLASS features are supported—ADSI features are not supported.

UPGRADING OR INSTALLING TELEVANTAGE

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Important!

The TeleVantage installation process requires that you restart your PC one or more times. Keep the Master CD in the drive while restarting. Do not remove the Master CD until instructed to do so.

If you remove the Master CD before or during a restart, the installation may not complete successfully.

Introduction

Is this upgrade for you?

Review this section carefully to determine if you should upgrade to TeleVantage 8.

Important: Be aware that if you do not upgrade to TeleVantage 8 for any reason, you will not have access to Dialogic or Vertical support for Dialogic SR 5 and Dialogic HMP 1.1 because Dialogic has discontinued support for those versions.

Note that TeleVantage 8 includes and requires Dialogic SR 6.0 SU 142, and does not work with any previous version of the Dialogic drivers.

Do not upgrade to TeleVantage 8 if either of the following apply to you:

- You have one or more EOL'd telephony boards installed in the TeleVantage Server and do not plan to remove them or replace them with supported boards. See the What's New (available on the TeleVantage Master CD) for a list of EOL'd boards which are not supported by Dialogic SR 6.0 SU 142.

If you are running TeleVantage 7.5 and do not plan to remove or replace EOL'd boards, you should continue to use TeleVantage 7.5 and the Dialogic SR 5.1.1. SU 107 drivers included with that version.

If you are running TeleVantage 4, 5, 6, or 7 and do not plan to remove or replace EOL'd boards, you can upgrade to TeleVantage 7.5 and Dialogic SR 5.1.1. SU 107. See *Installing TeleVantage* for version 7.5 for more information.

- You need to use an embedded H.323 VoIP stack. See "Using an embedded H.323 stack" in Chapter 4 in *Installing Dialogic Telephony Components* for more information. Note that embedded stack is only supported by Dialogic SR 5.1.1 SU 69, included with TeleVantage 7.

TeleVantage CDs

All the software that you need to upgrade your existing TeleVantage system or to install a new TeleVantage system is contained on three CDs. The Setup program on each CD allows you to install the components listed below.

All of the manuals mentioned in this section are available on the Master CD in the **Manuals** directory.

The Master CD

Follow the instructions in this manual to install these components.

- **Microsoft Data Engine (MSDE).**
- **TeleVantage Server.**
- **TeleVantage Services.**
- **TeleVantage workstation applications.**

The Master CD also contains the following:

- **TeleVantage Enterprise Manager.** For installation instructions, see the *TeleVantage Enterprise Manager Installation and Administrator Guide*.
- **TeleVantage SDK.** For installation instructions, see Chapter 15 in *Administering TeleVantage*.

The Dialogic HMP CD

Follow the instructions in Chapter 5 in *Installing Dialogic Telephony Components* to install these components.

- **Dialogic HMP Software Release (SR) 3.0.**
- **Dialogic HMP SR 3.0 Service Update (SU) 157.**

The Dialogic Drivers CD

Follow the instructions in Chapter 7 in *Installing Dialogic Telephony Components* to install these components.

- **Dialogic System Release (SR) 6.0.**
- **Dialogic SR 6.0 Service Update (SU) 142.**
- **TeleVantage SR 6.0 Driver Updates.**

Starting the Setup programs

The Setup program starts automatically when you insert any CD into your CD-ROM drive. You can also start the Setup program manually by running **autorun.exe** from the root directory on any CD. Once the Setup program starts, follow the on-screen instructions. This manual does not describe all Setup screens in detail.

Note: If the message “Corrupt installation detected” appears after you insert the CD or run **autorun.exe**, log on as a local administrator, and then reinsert the CD.

Installing TeleVantage from a zip file

If you are installing TeleVantage from a zip file that you downloaded, extract the contents of the file to your TeleVantage Server’s hard drive. Then, wherever a procedure in this manual refers to running a Setup program from a TeleVantage CD, run that program manually from the CD image that you extracted.

Troubleshooting installation problems

If you experience problems after completing a first-time installation or upgrade, see Appendix B, “Troubleshooting” for more information.

Upgrading vs. installing for the first time

- If you are upgrading from a previous version of TeleVantage, go to the next section.
- If you are installing a new TeleVantage system, go to “Installing a TeleVantage system for the first time” on page 7-8.

Preparing for an upgrade

The information in this section applies to all upgrade paths, no matter what version of TeleVantage you currently have installed.

Important: Do not under any circumstances uninstall TeleVantage Server or Microsoft MSDE/SQL Server. If you uninstall either one, you will lose your TeleVantage database and voice messages. The TeleVantage installation program preserves your earlier TeleVantage Server configuration, including voice messages and prompts. If you follow the instructions in this manual, you will not lose any data when you upgrade.

Scheduling an upgrade

If you are upgrading the live telephone system at your company, you must schedule the installation after business hours. The process of installing TeleVantage can take more than two hours. It can take significantly longer if you must configure and test T1, E1, BRI, or VoIP trunks. During this time, your telephone system will be offline and unavailable.

Backing up the TeleVantage database and voice files

Important: The upgrade is one-way, and cannot be uninstalled. To recover to a previous version, you will need to restore the entire PC image to the same version of TeleVantage that you were running previously according to the following instructions.

To maintain the integrity of your existing TeleVantage system and ensure a successful upgrade, back up your entire system—including the TeleVantage database and voice files—to a safe location off the TeleVantage Server PC. By backing up your system, you will be able to reconstruct your current system if you need to recover to the version of TeleVantage that you were running previously. Backing up an existing TeleVantage system may take an hour or more, especially if there are many voice messages stored in your database.

To backup the TeleVantage database and voice files, perform an offline backup according to the instructions in Chapter 12 of *Administering TeleVantage*. Be sure to refer to the copy of *Administering TeleVantage* that matches the TeleVantage version of the system that you are backing up, because the process is different for each version of TeleVantage.

If for any reason you are unable to start the TeleVantage Administrator, you can back up your files by running the Administrator from the command line. See “Cannot start Administrator to back up the TeleVantage database” on page B-10.

Note: You can only restore the TeleVantage database and voice files to a Server that is running the exact same version of TeleVantage (including service packs and hot fixes) as the Server on which you performed the backup. For example, you cannot backup a TeleVantage 5.x Server and restore it to a TeleVantage 6.x Server. This restriction applies to minor releases as well, for example, 6.0 and 6.1.

Important special upgrade scenarios

This section contains information about other tasks you may want to do at the same time that you upgrade to TeleVantage 8:

- Move the TeleVantage Server to a new PC. See page 7-5.
- Change the domain of the TeleVantage Server. See page 7-5.
- Move the TeleVantage voice files. See page 7-5.

If these scenarios do not apply to you, skip to “Upgrading from TeleVantage 7.5” on page 7-6.

Moving the TeleVantage Server to a new PC

Before you upgrade, you can move the TeleVantage Server to a new PC, for example if you have outgrown the original PC you are using for your TeleVantage Server.

If you plan to do so, see “Moving the TeleVantage Server to another PC” on page D-11 for information about license activation considerations.

To move the TeleVantage Server to a new PC

1. Make sure that the Windows user name you log in as to install TeleVantage on the new PC is the same user name as on the original PC.
2. On the new PC, install the exact same version of TeleVantage that is installed on the original PC (for example, version 5.00.1640), plus any TeleVantage service packs and hot fixes that you have installed.

Note: Be sure to install exactly the same TeleVantage system prompt languages on the new TeleVantage Server PC as on the original PC. For example, if you installed Spanish and English system prompts on the original PC, install those languages on the new PC as well.

3. Backup the TeleVantage database and voice files on the original PC. Then, restore the TeleVantage database and voice files to the new PC.
4. Make sure that the new Server is operating properly.

Changing the domain of the TeleVantage Server

See Appendix C, “Changing the Domain of the TeleVantage Server” if any of the following conditions apply to your upgrade:

- Your network configuration has changed, and you now have a domain that you want the TeleVantage Server to be a part of.
- You recently installed a Microsoft Exchange Server on your network, and you now want to support e-mail notification in TeleVantage. To support this feature, the TeleVantage Server must be on a domain.
- You changed the name or password of the domain user.
- You moved the TeleVantage Server to a different domain.

Moving the TeleVantage voice files

If you want to upgrade your TeleVantage system, but do not have enough free space on your disk to perform the installation, you can move the TeleVantage voice files to another location before performing the upgrade. See *Administering TeleVantage* for more information about moving voice files.

Upgrading from a previous version of TeleVantage

This section describes the following upgrade paths:

- Upgrading from TeleVantage 7.5
- Upgrading from TeleVantage 4, 5, 6, or 7
- Upgrading from TeleVantage 3.5 or earlier

Upgrading from TeleVantage 7.5

Upgrade tasks

During an upgrade, you must perform the tasks listed in the following table in the order specified. This list is only an overview of the tasks you must perform. Detailed instructions for each task are presented in *Installing Dialogic Telephony Components* and later chapters in this manual.

Step	Description
1	<p>If you were previously using Dialogic SR 5.1.1 drivers and Dialogic telephony boards:</p> <ul style="list-style-type: none">■ If you are removing or replacing any EOL'd Dialogic telephony boards, you must first remove these boards from the TeleVantage Server before installing the new Dialogic SR 6.0 SU 142 drivers.■ Install new boards as required.■ Upgrade the Dialogic drivers. <p>If you were previously using Dialogic HMP:</p> <ul style="list-style-type: none">■ Upgrade the Dialogic HMP software already installed on your TeleVantage Server.
2	Upgrade the TeleVantage Server and TeleVantage Administrator.
3	Add and activate your TeleVantage 8 licenses.
4	Upgrade the TeleVantage workstation applications.
5	Upgrade TeleVantage Web Services.
6	Upgrade or install TeleVantage ViewPoint Web Access, TeleVantage Multi-line TAPI Service Provider, TeleVantage Recording Archive Service, or TeleVantage SMDR Service.

Go to “Starting the upgrade” on page 7-7.

Upgrading from TeleVantage 4, 5, 6, or 7

Upgrade tasks

During an upgrade, you must perform the tasks listed in the following table in the order specified. This list is only an overview of the tasks you must perform. Detailed instructions for each task are presented in *Installing Dialogic Telephony Components* and later chapters in this manual.

Step	Description
1	If you were previously using Dialogic drivers and Dialogic telephony boards: <ul style="list-style-type: none">■ If you are removing or replacing any EOL'd Dialogic telephony boards, you must first remove these boards from the TeleVantage Server before installing the new Dialogic SR 6.0 SU 142 drivers.■ Install new boards as required.■ Upgrade the Dialogic drivers. If you were previously using or will be using Dialogic HMP (introduced in TeleVantage 7) to supply telephony resources: <ul style="list-style-type: none">■ Upgrade or install Dialogic HMP.
2	Install and configure the database server.
3	Upgrade the TeleVantage Server and TeleVantage Administrator.
4	Add and activate your TeleVantage 8 licenses.
5	Upgrade the TeleVantage workstation applications.
6	Upgrade TeleVantage Web Services.
7	Upgrade or install TeleVantage ViewPoint Web Access, TeleVantage Multi-line TAPI Service Provider, TeleVantage Recording Archive Service, or TeleVantage SMDR Service.

Go to the next section.

Starting the upgrade

Do one of the following:

- If you are upgrading or installing new Dialogic boards on the TeleVantage Server, go to Chapter 6 in *Installing Dialogic Telephony Components*.
- If you are leaving your Dialogic boards intact, but are upgrading your Dialogic drivers, go to Chapter 7 in *Installing Dialogic Telephony Components*.
- If you are upgrading or installing Dialogic HMP, go to Chapter 5 in *Installing Dialogic Telephony Components*.

Upgrading from TeleVantage 3.5 or earlier

If you are upgrading from TeleVantage 3.5 or earlier, you must first upgrade your system to TeleVantage 6.1 or higher, and then upgrade again to TeleVantage 8. See *Installing TeleVantage* (for the intermediate version that you choose to install) for details. Be sure to review “Notes for specific upgrade paths” in Chapter 6 in those manuals (in TeleVantage 6, this information was moved to Appendix F.)

Installing a TeleVantage system for the first time

If you are installing TeleVantage for the first time, you must perform the tasks listed in the following table in the order specified. This list is only an overview of the tasks you must perform. Unless otherwise noted, detailed instructions for each task are presented in later chapters in this manual.

Step	Description
1	Verify that the PCs you plan to use for the TeleVantage Server, the TeleVantage workstation applications, and TeleVantage Web Services meet the requirements described in Chapter 3.
2	Verify your Microsoft network type and the IP address of the TeleVantage Server PC, as detailed in “What you must know before installing” on page 7-9. You will need this information during the installation.
3	Install and configure Windows on the TeleVantage Server PC.
4	Do one of the following: If you will be using Dialogic HMP software to supply telephony resources for TeleVantage: <ul style="list-style-type: none">■ Install Dialogic HMP according to the instructions in Chapter 5 in <i>Installing Dialogic Telephony Components</i>. If you will be using Dialogic boards to supply telephony resources for TeleVantage: <ul style="list-style-type: none">■ Install the boards as required. For instructions, see Chapter 6 in <i>Installing Dialogic Telephony Components</i>.■ Install the Dialogic Drivers. For instructions, see Chapter 7 in <i>Installing Dialogic Telephony Components</i>.
5	Install and configure the database server.
6	Install the TeleVantage Server and TeleVantage Administrator on the TeleVantage Server.
7	Add and activate your TeleVantage 8 licenses.
8	Install the TeleVantage workstation applications.
9	Install TeleVantage Web Services.
10	Install TeleVantage ViewPoint Web Access, TeleVantage Multi-line TAPI Service Provider, TeleVantage Recording Archive Service, or TeleVantage SMDR Service.

What you must know before installing

For a smooth first-time installation, gather the following information before you begin:

- **Network environment type.** Is your Microsoft network a domain or workgroup environment?
 - If you are in a domain environment, you must know the name of the domain and the name and password of a domain user with administrator privileges on the PC on which the TeleVantage Server will be installed. See “Supported integrated trunk and station board” in Chapter 4 in *Installing Dialogic Telephony Components* for more information.
 - If you are in a workgroup environment, you do not need to know this information.
- **The IP address of the TeleVantage Server PC.**
 - Important:** If you are using VoIP, (SIP, Dialogic HMP, or H.323 host-based stacks), you must configure your TeleVantage Server with a static IP address. You cannot use a dynamically-assigned IP address.
 - If you use static IP addressing, you must know the IP address of the Server PC, your Subnet Mask, and the IP address of your default gateway to properly configure the TeleVantage Server on a network.
 - If you use dynamic IP addressing, you do not need to know this information.

Starting the first-time installation

To begin installing TeleVantage for the first time, go to Chapter 8, “Installing and Configuring Windows on the TeleVantage Server.”

Read the Introduction in Chapter 8 and follow the steps as directed. The Introduction also addresses site-specific installation considerations, such as the versions of operating system or other system components already present on your PC.

INSTALLING AND CONFIGURING WINDOWS ON THE TELEVANTAGE SERVER

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Installing Windows 2000/XP/2003	8-2
Configuring Windows 2000/XP/2003 for TeleVantage	8-3

Introduction

Before you install TeleVantage components, you or your system administrator must install and configure one of the Windows operating systems listed on page 3-2 on the TeleVantage Server PC.

If you are upgrading from a previous version of TeleVantage, go to Chapter 8. Otherwise, continue reading this chapter.

Note: Throughout this chapter, the term “Windows 2000/XP/2003” refers to the versions of Windows supported on the TeleVantage Server: Windows 2000 Server, Windows 2000 Professional, Windows XP Professional, and Windows Server 2003.

Perform these steps

You will perform the following steps as you install the TeleVantage Server:

- Install and configure Windows 2000/XP/2003.
- Configure Windows 2000/XP/2003 for TeleVantage.
- Create the Windows 2000/XP/2003 user for TeleVantage.

Note: Even if Windows 2000/XP/2003 is already installed on your PC, you must perform the last two steps to ensure that your system is set up correctly for use by TeleVantage.

Installing Windows 2000/XP/2003

Install Windows 2000/XP/2003 on a clean PC according to the instructions that came with the software.

When you are done, you are ready to perform the following tasks:

- Configure Windows 2000/XP/2003 for TeleVantage
- Create a Windows 2000/XP/2003 user for TeleVantage

Go to the next section.

Configuring Windows 2000/XP/2003 for TeleVantage

Use the information in the following table to configure Windows 2000/XP/2003 for use with TeleVantage.

Dialog box name	TeleVantage requirement
Licensing Modes	<p>If each TeleVantage user's PC already has a Windows 2000/XP/2003 per-seat license to connect to other Windows 2000/XP/2003 Servers, you do not need any more licenses.</p> <p>If TeleVantage users' PCs use concurrent licenses, you must estimate the number of users who will play voice messages and custom recordings over their computer speakers concurrently to determine how many concurrent licenses you need. Playing voice files over the telephone does not use the network, so you do not need to allocate licenses for this purpose.</p>
Computer Name and Administrator Password	Enter the network name for the TeleVantage Server PC. Use the name "TeleVantage" to make the Server easily identifiable.

Go to the next section.

Creating the Windows 2000/XP/2003 user for TeleVantage

After installing and configuring Windows 2000/XP/2003, you must create the Windows 2000/XP/2003 user that will install and run TeleVantage. Depending on your environment, do one of the following:

- If you are not in a domain environment, go to the next section.
- If you are in a domain environment, go to "If you are in a Windows 2000/XP/2003 domain environment using Microsoft Exchange" on page 8-4.

If you are not in a Windows 2000/XP/2003 domain environment using Microsoft Exchange

If you are not in a domain environment, you can create a new user with administrator privileges on the local system, or you can log on yourself as the TeleVantage system administrator.

To create a new user with administrator privileges

1. Log on to the TeleVantage Server PC as the local administrator user.
2. Click **Start > Programs > Administrative Tools > Computer Management**.
3. Select **System Tools > Local Users and Groups > Users**.
4. Click **Action > New User**.
5. Enter properties for the new user and make a note of the user name you enter.

6. Click **Create** to create the new user. Close the dialog box but do not exit **Computer Management**.
7. Select **System Tools > Local Users and Groups > Groups**.
8. Select the Administrators group.
9. Click **Add**.
10. Make sure the local computer is selected in the **Look in** drop-down list.
11. Select the new user and click **Add**.
12. Click **OK** to close the **Select Users or Groups** dialog box.
13. Click **OK** to close the **Administrator Properties** dialog box.
14. Exit **Computer Management**.

To add required rights for the new user

1. Click **Start > Programs > Administrative Tools > Local Security Policy**.
2. Select **Security Settings > Local Policies > User Rights Assignment**.
3. Select **Log on as a batch job**.
4. Click **Action > Security** and click **Add**.
5. Make sure the local computer is selected in the **Look in** drop-down list.
6. Select the new user and click **Add**.
7. Click **OK** to close the **Select Users or Groups** dialog box.
8. Click **OK** to close the **Local Security Policy Setting** dialog box.
9. Exit **Local Security Settings**.

When you are done, go to Chapter 9, “Installing The TeleVantage Database Server.”

If you are in a Windows 2000/XP/2003 domain environment using Microsoft Exchange

If you are in a domain environment in which you will use Microsoft Exchange with TeleVantage for e-mail notification or synchronization, you must create a domain user so that TeleVantage can communicate with Exchange. The domain user must be a member of the Domain Users Group, which is the default group for a new domain user.

To create a domain user that is a member of the Domain Users Group

1. Log on to your Windows 2000/XP/2003 primary domain controller (PDC) PC as a domain administrator user.
2. Click **Start > Programs > Administrative Tools > Active Directory Users and Computers**.

3. In the console tree, double-click the domain node.
4. In the details pane, right-click the organizational unit to which you want to add the user, point to **New**, and then click **User**.
5. Enter properties for the new user and make a note of the user name you enter. For information about individual properties, see your Windows documentation.
6. Click **Add** to add the new user.
7. Log off.

To add the new user to the local Administrator group

1. Log on to your TeleVantage Server PC as a member of the Domain Administrators group.
2. Click **Start > Programs > Administrative Tools > Computer Management**.
3. Select **System Tools > Local Users and Groups > Groups**.
4. Select the **Administrators** group.
5. Click **Action > Add to Group** and click **Add**.
6. Make sure the domain is selected in the **Look in** drop-down list.
7. Select the new user and click **Add**.
8. Click **OK** to close the **Select Users or Groups** dialog box.
9. Click **OK** to close the **Administrator Properties** dialog box.
10. Exit **Computer Management**.

To add required rights for the new user

1. Click **Start > Programs > Administrative Tools > Local Security Policy**.
2. Select **Security Settings > Local Policies > User Rights Assignment**.
3. Select **Log on as a batch job**.
4. Click **Action > Security** and click **Add**.
5. Make sure the local computer is selected in the **Look in** drop-down list.
6. Select the new user and click **Add**.
7. Click **OK** to close the **Select Users or Groups** dialog box.
8. Click **OK** to close the **Local Security Policy Setting** dialog box.
9. Exit **Local Security Settings**.

Where to go next

When you have installed and configured Windows 2000/XP/2003, go to Chapter 9.

INSTALLING THE TELEVANTAGE DATABASE SERVER

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Introduction

If you are upgrading from TeleVantage 7, skip to Chapter 10.

TeleVantage uses a database server to manage and access the TeleVantage database. See “TeleVantage database server requirements” on page 3-11 for information about the pros and cons of the various database servers you can use with TeleVantage.

- **If you are installing TeleVantage for the first time.** Do one of the following depending on your needs:
 - Install Microsoft MSDE 2000 SP3a from the Master CD. See page 9-3. SP4 is also supported, but must be downloaded from Microsoft.
 - Install your own copy of SQL Server 2000. Be sure to apply the latest SQL Server service pack according to the instructions on page 9-4.
- **If you are upgrading from a previous version of TeleVantage.** If you have not already done so, it is critical that you backup your TeleVantage database before starting the upgrade. See “Backing up the TeleVantage database and voice files” on page 7-4.

Note the following:

- **If your current database server is MSDE 1.0.** MSDE 1.0 is not supported. You must either install MSDE 2000 SP3a from the Master CD according to the instructions on page 9-3, or your own copy of MSDE 2000 SP4.
- **If your current database server is SQL Server 2000 SP2 or earlier (any edition).** Be sure to apply the latest SQL Server service pack according to the instructions on page 9-4.
- **If your current database server is SQL Server 7.0 (any edition).** SQL Server 7.0 is not supported. Install your own copy of SQL Server 2000. You must apply the latest SQL Server service pack and then set the database compatibility level according to the instructions on page 9-4. Also, be sure not to change your Authentication from SQL to NT or Windows. The TeleVantage database requires SQL authentication.

If you experience problems with your database server after following the instructions in this chapter, see “Troubleshooting database server problems” on page B-4.

Installing MSDE from the Master CD

Important: The MSDE database server installation has been customized for TeleVantage. You must install the database server using the Master Setup program, according to the following instructions.

To install MSDE from the Master CD

1. Insert the Master CD. If the Master Setup does not start automatically, run **autorun.exe** from the root directory on the Master CD.
2. Click **Microsoft Data Engine**.



3. The Master Setup searches to see if Microsoft Internet Explorer 5.0 or higher is already installed on your PC. If you do not get a warning message, go to the next step.

If Internet Explorer 5.0 or higher is not detected, you are prompted to install it. Go to the following location to obtain the latest version:

<http://www.microsoft.com/downloads>

Download and install the latest version, and then re-start the TeleVantage Master Setup.

4. Follow the on-screen instructions. The Master Setup searches to see if the correct version of Microsoft Data Engine is detected on your PC. If it is found, click **Next** to exit Setup. Go to the next chapter.

If Microsoft Data Engine is not detected on your PC, follow the on-screen instructions.

5. First-time installations: Do the following:

- The Master Setup shows the default directory where MSDE will be installed. To install MSDE in a different location, click **Browse**. Click **Next** to continue.
- In the MSDE Password screen, enter the password that will be used by the MSDE system administrator account. It is important to save this password as it will be needed for all future upgrades. Click **Next** to continue.

Upgrades: The Master Setup automatically uses the existing MSDE directory and system administrator (sa) password. If the sa password is not accepted, see the troubleshooting tip on page B-5.

6. MSDE installation will take awhile, from 5 minutes when you are installing for the first time, to up to an hour when you are upgrading.

Note: After file copying starts, a command window will open briefly. Do not close the command window—closing it can cause the MSDE installation to fail.

7. If you are prompted to restart the PC, do so.

Applying the latest SQL Server service pack _____

If you did not install MSDE 2000 SP3A from the Master CD, you need to apply the latest SQL Server service pack before continuing.

Upgrading from TeleVantage 5.x: The TeleVantage 5.x installation process changed the SQL Server sa account password, which you must enter when applying the latest SQL Server service pack. Before applying the service pack, install the 8 Server as described in the next chapter. The 8 Server installation program prompts you to change the sa account password to something you know. When the 8 Server installation completes, apply the SQL Server service pack using the new sa account password.

To apply the latest SQL Server service pack

- 1.** Download the latest SQL Server service pack by going to <http://www.microsoft.com> and searching on the keyword “SQL Server”.
- 2.** Find the version of SQL Server you are running (MSDE 2000 or SQL Server 2000) from the SQL Server downloads site, and download the service pack installer.
- 3.** Double-click the downloaded file to extract the contents and follow the enclosed instructions.

If you upgraded from SQL Server 7 to SQL Server 2000

If you upgraded from SQL Server 7 to SQL Server 2000, you need to set the compatibility level correctly on the TeleVantage database. To do so:

1. Run the following utility from the Master CD:
Support\SQL7toSQL2000\SQL2000CompatLevel.exe
2. Click **Apply**.

Where to go next_____

When you have successfully installed or upgraded your database server, go to Chapter 10.

INSTALLING THE TELEVANTAGE SERVER SOFTWARE

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Introduction

Task checklist

You must perform the tasks listed in the following table in the order specified to install and configure the TeleVantage Server. This list is only an overview of the tasks you must perform. Detailed instructions for each task are presented in later sections in this chapter.

Step	Description
1	Install the TeleVantage Server.
2	Install the TeleVantage Administrator.
3	Install a dongle, if you plan to use that method of hardware locking for your TeleVantage licenses.
4	Enter and activate your TeleVantage licenses.
5	Test the TeleVantage Server.
6	Set the TeleVantage Server to autostart.
7	Set access rights to the TeleVantage Server.
8	Optionally, configure TeleVantage for use with a proxy server. Perform this step if you use a proxy Server to access the Internet from a local area network.
9	Optionally, configure e-mail notification support. Perform this step if your users want to receive e-mail notification of voice messages.

If you experience problems after following the instructions in this chapter, see “Troubleshooting TeleVantage Server problems” on page B-5.

Requirements

For a list of the hardware and software requirements for the TeleVantage Server PC, see “TeleVantage Server PC requirements” on page 3-2.

Installing the TeleVantage Server

Note: If you are installing on a TeleVantage Server PC running Windows Server 2003 from a remote location (for example, using Remote Desktop), from the Start menu, click **Administrative Tools > Terminal Services Configuration > Server Settings**, and set **Delete temporary folders on exit** to **No**. Be sure to reset this setting to its original value when the installation completes.

1. If you are installing TeleVantage from a zip file that you downloaded, extract the contents of the file to your TeleVantage Server’s hard drive. Do not run any of the extracted files yet.

2. Close all open Windows applications running on the TeleVantage Server PC. You do not need to stop SQL services.
3. Do one of the following:
 - If you are installing TeleVantage for the first time, go to step 4.
 - If you are upgrading from a previous version of TeleVantage, shut down the TeleVantage components. To do so:
 - Stop the TeleVantage Server. To do so, in the TeleVantage Administrator, choose **Tools > Shut down Server** and then select **Stop TeleVantage Server and Dialogic Drivers**.
 - Exit all TeleVantage workstation applications (ViewPoint, Administrator, TAPI Service Provider, and Contact Manager Assistant) running on any PCs in the network.
 - Exit the Device Monitor by right-clicking its icon in the system tray and choosing **Exit Device Monitor**. Make sure that you exit the Device Monitor and that you do not just minimize it.
 - Stop all TeleVantage applications, including the TeleVantage Archived Recording Browser, TeleVantage Station Message Detail Recording (SMDR) service, TeleVantage Conference Manager, and TeleVantage Enterprise Manager.
4. Log on to the network using the Windows Server user created for the TeleVantage Server.

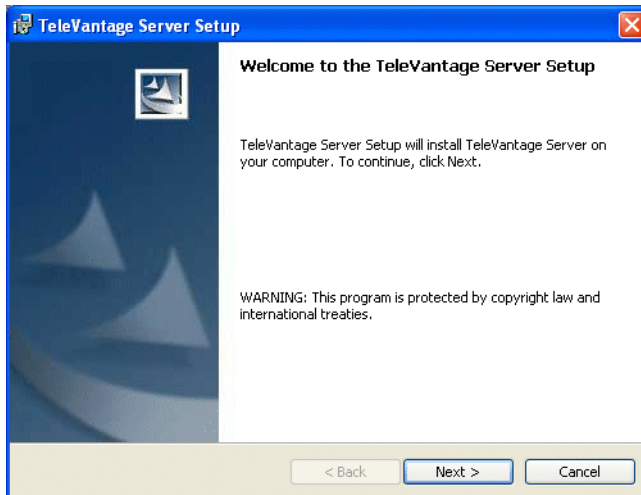
Note: If you have not already created this user, which will be used to run the TeleVantage Service, see Chapter 8 for information about creating the Windows Server user.
5. **If you are installing on a TeleVantage Server running on Windows Server 2003 from a remote location** (for example, using Remote Desktop), do the following. Otherwise, go to step 6.

From the Start menu, click **Administrative Tools > Terminal Services Configuration > Server Settings**, and set **Delete temporary folders on exit** to **No**. You will be reminded to restore this setting to its original value after the TeleVantage Server installation completes.
6. Insert the Master CD. If the Master Setup does not start automatically, run **autorun.exe** from the root directory on the Master CD.

7. Click **TeleVantage Server**.

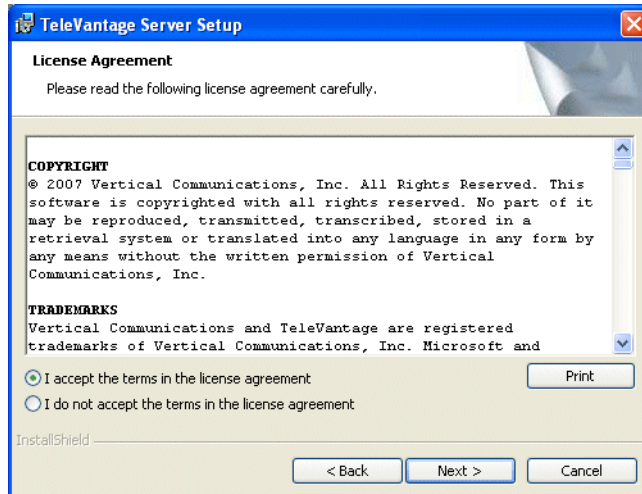


8. The TeleVantage Server Setup starts.



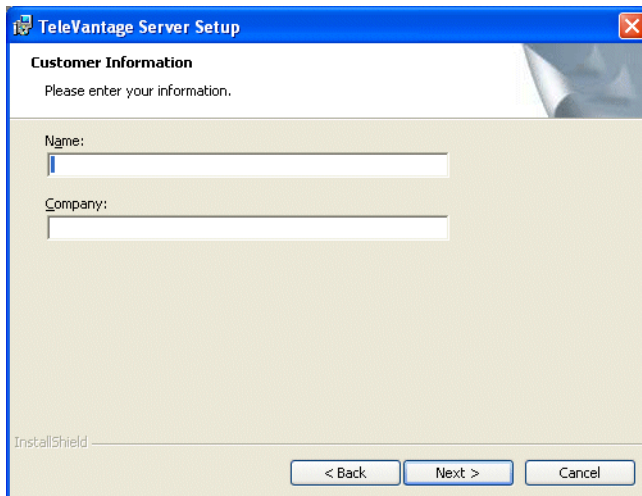
Follow the on-screen instructions.

9. In the License Agreement dialog box, signify your agreement with the conditions by clicking **I accept the terms in the license agreement**.



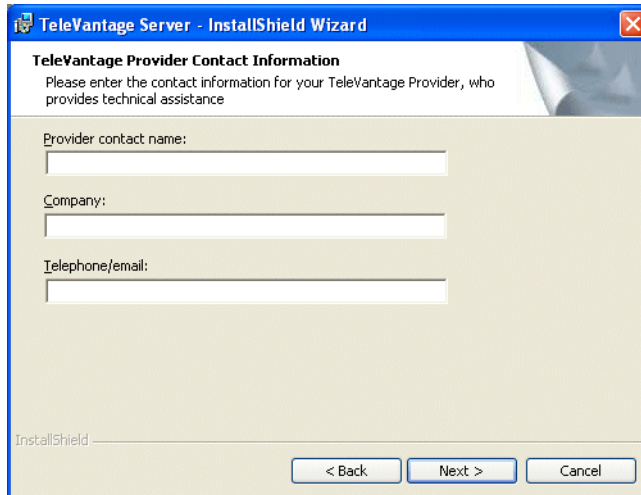
Click **Next** to continue.

10. In the Customer Information dialog box, enter your **Name** and your **Company** name.



Click **Next** to continue.

11. In the TeleVantage Provider Contact Information dialog box, enter the name, company, and the telephone number or e-mail address of your TeleVantage provider.

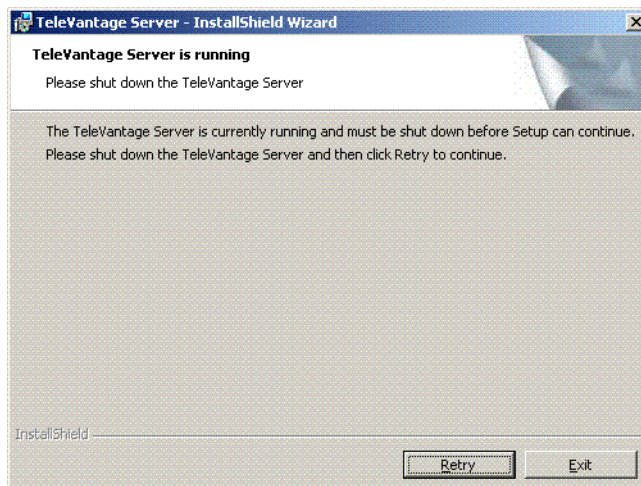


The dialog box is titled "TeleVantage Server - InstallShield Wizard". It contains a section titled "TeleVantage Provider Contact Information" with the instruction: "Please enter the contact information for your TeleVantage Provider, who provides technical assistance". Below this are three text input fields labeled "Provider contact name:", "Company:", and "Telephone/email:". At the bottom, there are three buttons: "< Back", "Next >", and "Cancel". The "InstallShield" logo is visible in the bottom left corner.

Note: It is important to enter this information, because it is helpful to users who need to contact technical support to report a problem. Users can obtain this information by choosing **Help > About** from TeleVantage ViewPoint or the Administrator.

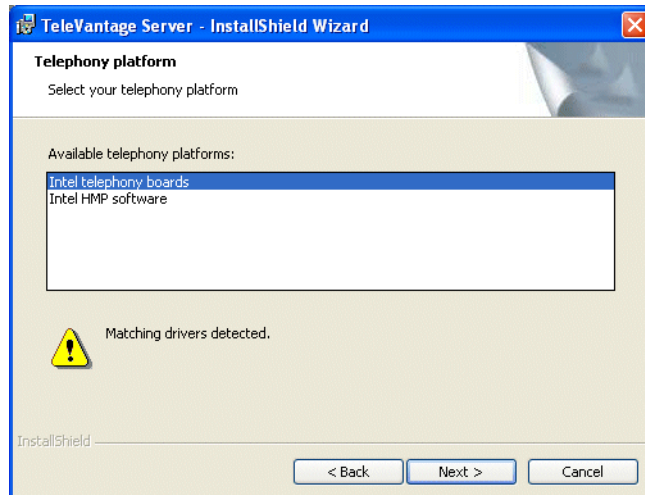
Click **Next** to continue.

12. If the Server Setup detects that the TeleVantage Server is running, stop it, and then click **Retry** to continue.



The dialog box is titled "TeleVantage Server - InstallShield Wizard". It contains a section titled "TeleVantage Server is running" with the instruction: "Please shut down the TeleVantage Server". Below this, it states: "The TeleVantage Server is currently running and must be shut down before Setup can continue. Please shut down the TeleVantage Server and then click Retry to continue." At the bottom, there are two buttons: "Retry" and "Exit". The "InstallShield" logo is visible in the bottom left corner.

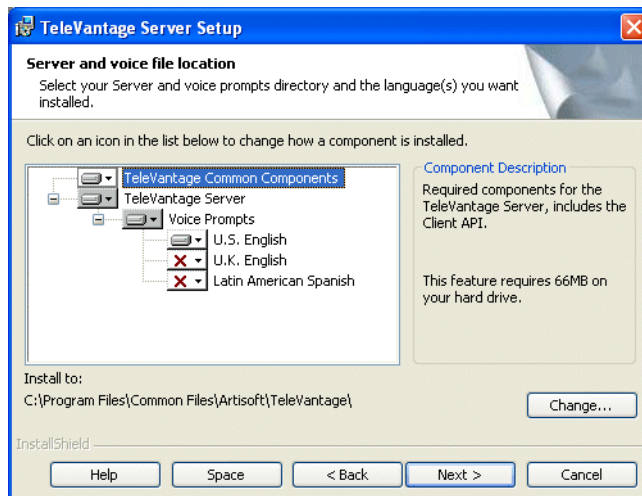
13. In the Telephony platform dialog box, select the method by which you are providing telephony resources for TeleVantage, based on whether you installed Dialogic telephony boards or Dialogic HMP software according to the instructions in *Installing Dialogic Telephony Components*.



Note: A warning message appears if you choose an option that does not match what is already installed on your TeleVantage Server, or if you must install missing components for proper operation.

Click **Next** to continue.

14. The TeleVantage Server and voice file location dialog box shows the default directory in which the TeleVantage Server will be installed.



First time installations:

- To install the TeleVantage Server in a different location from the default location, click **TeleVantage Server**, and then click **Change** and browse to that location.
- Install the system prompt languages that both callers and users hear. To do so, select each of the languages that your callers and users are likely to want to use, but note that each language will require significant extra disk space. (Voice prompts for other languages are available, and are installed separately. See “Multi-lingual system prompts” on page 1-4.)

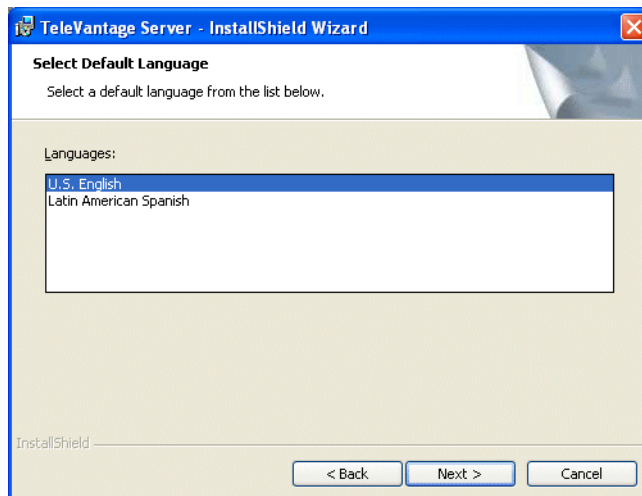
Voice files for the languages you select in this dialog box will be installed in the default directory shown. To install voice files in a different location, click **Voice Prompts**, and then click **Change** and browse to that location.

Note: This step installs language files, but does not specify how they are used in TeleVantage. Once installed, you use the TeleVantage Administrator and ViewPoint to specify which languages will be used by individual users and callers. To install additional languages at later time, you must run the TeleVantage Server Setup again.

Upgrades: Select additional languages to install.

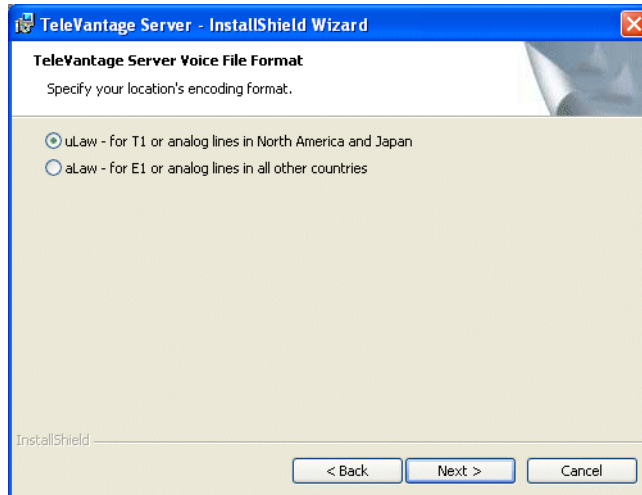
Click **Next** to continue.

15. If you selected more than one language in the Server and voice file location dialog box, the Select Default Language dialog box opens. Select the default language for system prompts. This language will also be used as the default when creating new users and contacts.



Click **Next** to continue.

16. In the TeleVantage Server Voice File Format dialog box, specify the encoding format used in your location.

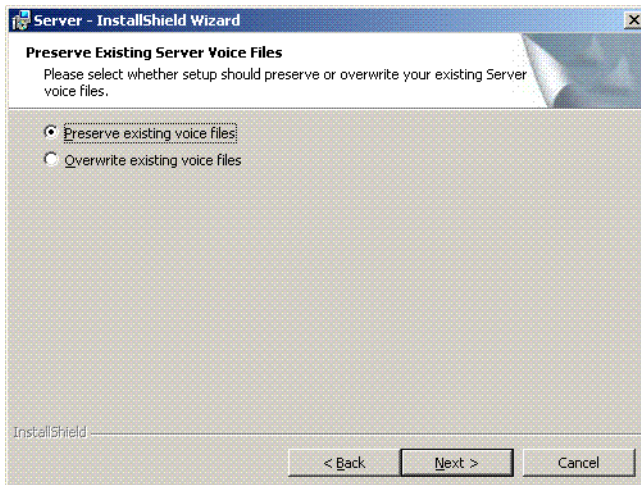


Click **Next** to continue.

Note: If you must change voice file format after installing the TeleVantage Server, see *Administering TeleVantage*. This dialog box does not appear if you reinstall the TeleVantage Server.

17. **Upgrades:** In the Preserve Existing Server Voice Files dialog box, choose what to do with any customized system prompts that you have previously recorded.

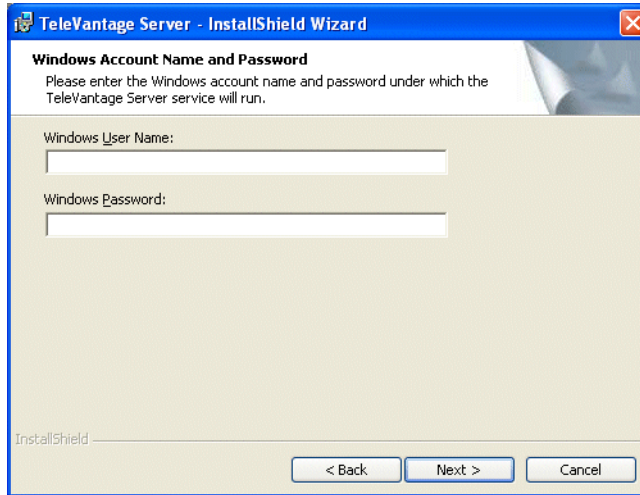
Note: This choice affects only system prompts that you have customized, not other recordings that you have made, such as greetings or auto attendants. Custom greetings and auto attendants are always preserved during an upgrade.



- **Preserve existing voice files.** Choose this option if you have not customized any system prompts, or if you want to retain your customized system prompts. Any system prompts that have been customized are retained, while unmodified system prompts are overwritten with TeleVantage 7 versions.
- **Overwrite existing voice files.** Choose this option to overwrite all system prompts.

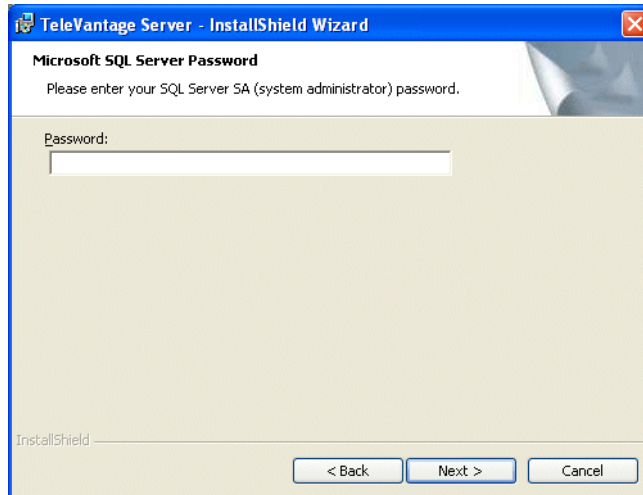
Click **Next** to continue.

18. In the Windows Account Name and Password dialog box, enter the name and password of the account you will use to run the TeleVantage Server.



Click **Next** to continue.

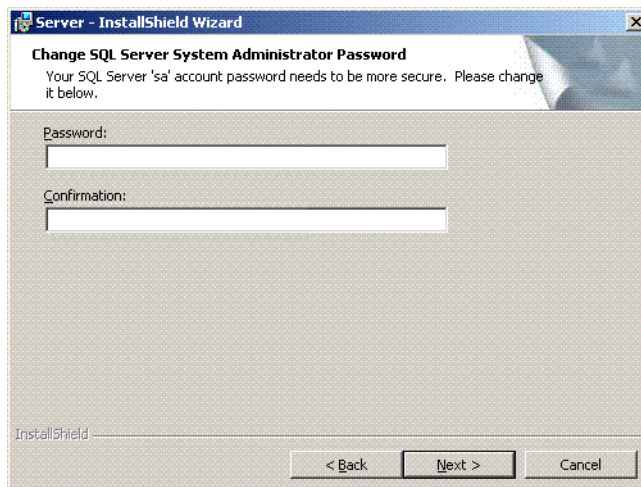
- 19. First-time installations:** In the Microsoft SQL Server Password dialog box, enter your SQL Server SA (system administrator) password.



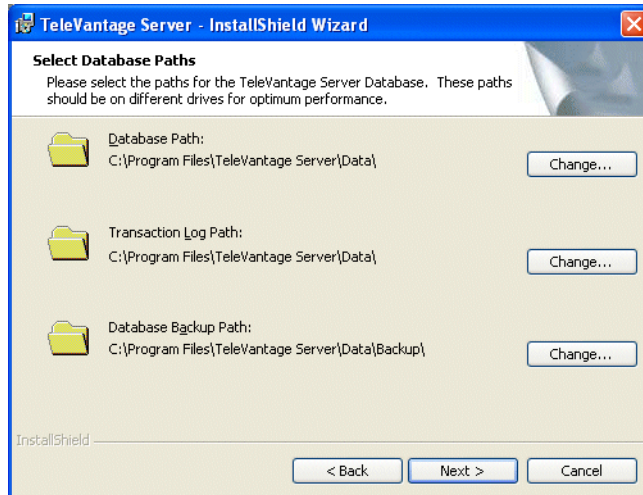
Click **Next** to continue.

- 20. Upgrades:** In the Change SQL Server System Administrator Password dialog box, enter a new SA (system administrator) password.

Note: This dialog box only opens if your current SQL Server SA (system administrator) password is blank.



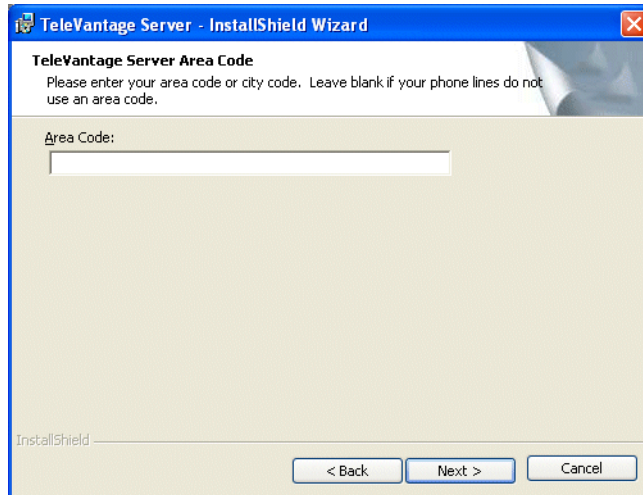
21. In the Select Database Paths dialog box, specify the locations for the components of the TeleVantage database. For optimal performance, these components should be on different drives. See page 3-12 for database configuration recommendations.



The database components will be installed in the default directories shown. To install any of them in a different location, click **Change** and browse to that location.

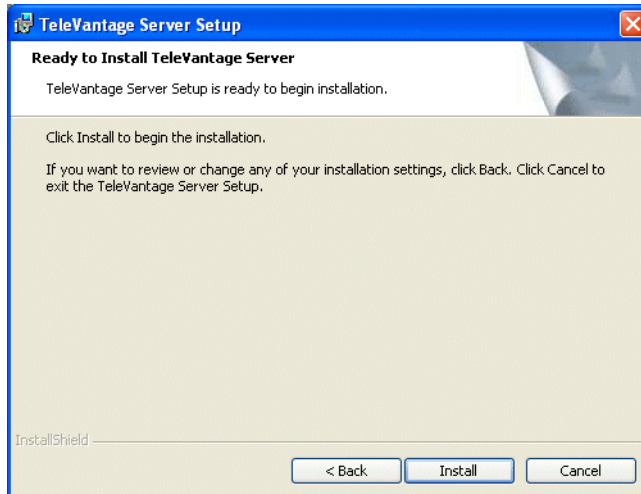
- **Database Path.** Location of the TeleVantage database.
- **Transaction Log Path.** Location of the SQL Server transaction logs.
- **Database Backup Path.** Location to which TeleVantage database backups are saved.

- 22. First-time installations:** In the TeleVantage Server Area Code dialog box, enter your telephone area code or city code.



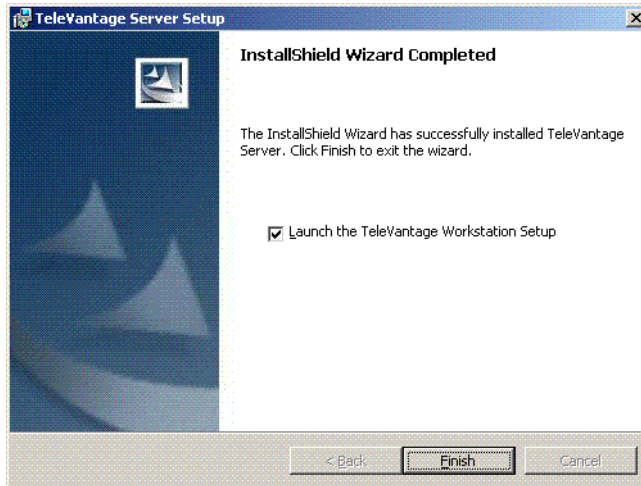
Leave **Area Code** blank if your phone lines do not use an area code. Click **Next** to continue.

- 23.** In the Ready to Install TeleVantage Server dialog box, click **Install**.



Important: Installation can take several minutes. If you are prompted to restart your computer, do so. Be sure to leave the Master CD in the drive throughout the installation and while the Server PC restarts.

24. After the PC restarts, log on as the same user you used previously. The TeleVantage Server Setup program will resume, copy additional files, and then complete the installation automatically. This may take a significant amount of time, so be sure to allow the TeleVantage Server Setup program to complete.
25. In the Setup Complete dialog box, select the **Launch the TeleVantage Workstation Setup** checkbox to install the TeleVantage Administrator on the TeleVantage Server PC in order to enter your licenses according to the instructions in “Installing the TeleVantage Administrator” on page 10-15. Click **Finish**.



26. The TeleVantage Workstation Setup starts. If it does not start automatically, start it manually as described in the next section. (**Upgrades:** Without this step, Add-ons such as the TeleVantage Conference Manager may fail to work after upgrading. All TeleVantage workstation applications on your network will automatically upgrade the next time the TeleVantage Administrator or ViewPoint is started.)
27. If you plan to install TeleVantage Enterprise Manager or other Add-Ons (for example, TeleVantage Conference Manager) on the TeleVantage Server, run the TeleVantage Service Account Utility now as described on page C-1.

Note: If after installing the TeleVantage Server according to the previous instructions you upgrade the TeleVantage Server PC to Windows XP SP2 or Windows 2003 Server SP1, run the TeleVantage Service Account Utility on the TeleVantage Server as described on page C-1; restart the Server PC if you are prompted to do so; and then follow the instructions in Appendix F, “Configuring TeleVantage for the Windows Firewall.”

Installing the TeleVantage Administrator

This section explains how use the TeleVantage Workstation Setup program to install the TeleVantage Administrator in the default location on the TeleVantage Server PC.

Note: You will use Workstation Setup again in Chapter 11 to install the TeleVantage workstation applications on other PCs or to install other workstation applications on the Server. All the Workstation Setup options are described in that chapter.

To install the TeleVantage Administrator on the TeleVantage Server PC

1. If you came here by checking select the **Launch the TeleVantage Workstation Setup** checkbox at the end of the TeleVantage Server Setup program, go to step 5.
2. Log on to the TeleVantage Server PC as the same user you specified when you installed the TeleVantage Server.
3. Close all open Windows applications.
4. If the TeleVantage Workstation Setup is not running, from the Start menu, choose **Programs > Vertical TeleVantage > TeleVantage Workstation Setup**. Follow the on-screen instructions.
5. When the Welcome to the TeleVantage Workstation Setup screen appears, click **Next** to continue.
6. Review the License Agreement. Click **I accept the terms in this license agreement**, and then click **Next** to continue.
7. In the Customer Information screen, enter your **User Name** and **Organization**.
8. In the TeleVantage Server Information screen, enter the **TeleVantage Server Name** and the **Telephone Station ID** of the phone that will be used by the person administering the TeleVantage system from this PC (the Admin user).

The station ID corresponds to the port number on the station board to which the phone is connected. To hear your station ID, pick up the phone and dial ***0**.

Note: If there is not a TeleVantage phone near this PC, enter a station ID of 0. Without a phone, the user administering TeleVantage from this PC will be able to perform all administrative functions with the exception of recording voice prompts. If you enter a station ID of 0, when you click **Next**, the No Telephone Station ID Specified screen opens to make sure that you understand this limitation, and gives you the opportunity to go back and enter a valid station ID.

Select **Only for me** if you want only this user to be able to run the Administrator from this PC.

Click **Next** to continue.

9. In the Setup Type screen, select **Typical** to install the TeleVantage Administrator in the default location. To install additional workstation applications on the TeleVantage Server, perform a custom installation, as described in Chapter 11.

Click **Next** to continue.

10. In the Ready to Install screen, click **Install**. Installation may take several minutes.
11. In the Installation Completed screen, select the **Show What's New** checkbox to see a complete listing of the new features available in this version of TeleVantage. Click **Finish** to complete the installation.

Go to the next section.

Entering and activating your TeleVantage licenses

If you are upgrading from TeleVantage 7, skip to “Testing the TeleVantage Server” on page 10-21.

This section explains how to do the following:

- Enter licenses manually, using the TeleVantage Administrator.
- Activate licenses over the Internet to enable full functionality on your TeleVantage system.

Note the following important information:

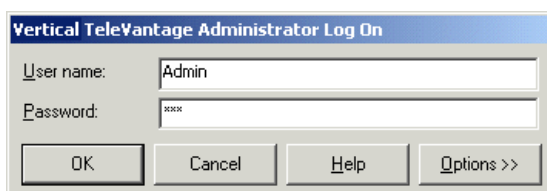
- **You need to enter new licenses even if you are upgrading from a previous version.** You need to know the serial number and verification key of the license in order to enter it. Typically, this information is supplied by your TeleVantage provider as a printed document or in a license file. If your TeleVantage provider supplies you with a license file, see page D-7 for instructions on how to import it.
- **Keep your license serial numbers and verification keys in a safe location and do not share them with others.** This information forms the basis for your ability to install and use TeleVantage.
- **You must activate your licenses.** Activation requires the following:
 - **Hardware ID.** When you activate your licenses, you must choose a hardware ID on the TeleVantage Server PC to which your licenses are locked. Be sure to review the hardware locking options described in “How hardware locking works” on page D-9. If you plan to use a dongle for hardware locking, install it according to the instructions in “Installing a dongle” on page D-11 before entering and activating your licenses.
 - **Internet access on the PC on which you are running the TeleVantage Administrator.** If you do not have an Internet connection, you can activate your licenses from another PC in the network that does have Internet access. See “Activating licenses via the web” on page D-4 for instructions.
 - **Partner ID.** Request this number from the place where you purchased TeleVantage.

You must have a valid Server license to start the TeleVantage Server. Trunk, Station, IP Port, ViewPoint, Call Center Agent, Reporter, and Conference Manager licenses are optional, and are only required if you want to use these components. See “TeleVantage license requirements” on page 3-16 for information about the different licenses that are available.

For details about how TeleVantage licensing works see Appendix D, “Managing TeleVantage Licenses.”

To enter and activate TeleVantage licenses

1. Start the TeleVantage Administrator by choosing **Start > Programs > Vertical TeleVantage > TeleVantage Administrator**.
2. In the Administrator Log On dialog box, enter your **User name** and **Password**, and then click **OK**.



Note: After first installing the TeleVantage Administrator, log on using the default **User name** Admin and the default **Password** of 100.

3. If you logged on using the default **User name** and **Password**, the Security Warning dialog box opens, reminding you to change the defaults to protect your system.



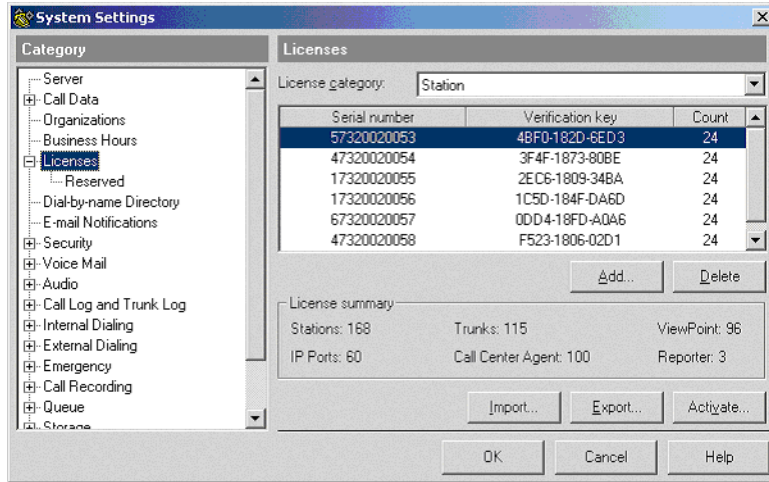
Click **OK** to continue.

4. Change the default passwords for the Admin and Operator user accounts right now to protect yourself against toll fraud. To do so:
 - Open the Users view by clicking its button in the view bar on the left side of the Administrator window.
 - Double-click the Admin user.

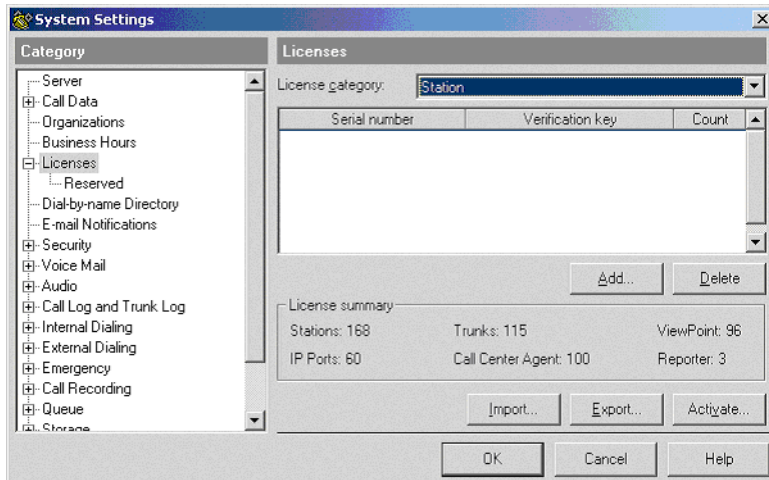
- Change the default **Password** to one that is at least 5 digits long and cryptic. Retype the new password in the **Confirmation** field. Click **OK**.
- Change the password for the Operator user as well.

See page I-3 for more information about password security.

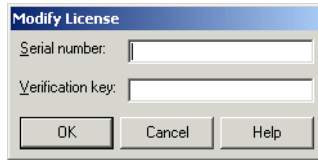
5. Choose **Tools > System Settings**, and then click **Licenses** in the Category pane.



6. Enter your Server license first. Select **Server** from the **License category** drop-down list, and then enter the **Serial number** and **Verification key** for the Server license.
7. To enter the next license, select the appropriate license category from the drop-down list in the right pane.



8. Click **Add**. The Modify License dialog box opens.



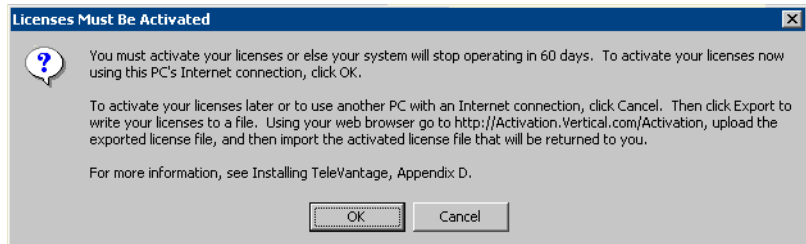
Enter the **Serial number** and **Verification key** for the license, and then click **OK**.

For each remaining license, repeat this step.

9. If this PC is connected to the Internet, click **Activate** to activate your licenses, and then go to step 11.

If this PC is not connected to the Internet, or you plan to activate your licenses later, click **OK**.

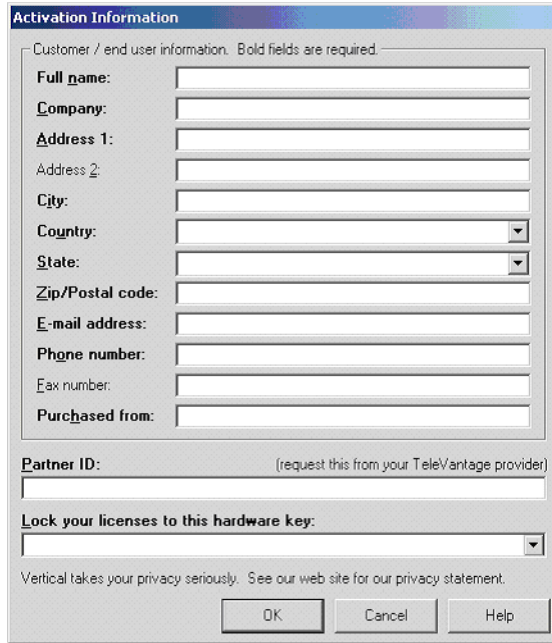
10. Licenses Must be Activated dialog box opens to remind you that your licenses have not been activated.



See “How to activate your licenses” on page D-4 for instructions on how to activate your licenses.

Go to “Testing the TeleVantage Server” on page 10-21.

11. The Activation Information dialog box opens.

The image shows a Windows-style dialog box titled "Activation Information". At the top, it says "Customer / end user information. Bold fields are required." Below this is a list of fields: "Full name:", "Company:", "Address 1:", "Address 2:", "City:", "Country:", "State:", "Zip/Postal code:", "E-mail address:", "Phone number:", "Fax number:", and "Purchased from:". The fields for "Full name", "Company", "Address 1", "City", "Country", "State", "Zip/Postal code", "E-mail address", "Phone number", and "Purchased from" are bolded. "Country" and "State" are dropdown menus. Below these fields is a "Partner ID:" field with a note "(request this from your TeleVantage provider)". Below that is a "Lock your licenses to this hardware key:" section with a dropdown menu. At the bottom, there is a privacy statement: "Vertical takes your privacy seriously. See our web site for our privacy statement." and three buttons: "OK", "Cancel", and "Help".

Complete the information in the Activation Information dialog box. All fields in **bold** are required. Completing all the fields will help your technical support representative when troubleshooting problems, and will keep you informed of any updates.

Note: If you do not know your **Partner ID** (a required field), request it from the place where you purchased TeleVantage.

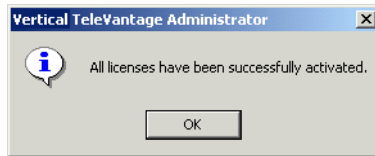
12. Specify the hardware ID to which you want to lock your TeleVantage licenses by selecting one of the following from the drop-down list. Once locked to a hardware ID, your licenses will only work on a PC with that hardware ID. For more information, as well as details on the pros and cons of locking to each type of hardware ID, see "How hardware locking works" on page D-9.

- **Hard drive.** The serial number of each hard drive on the TeleVantage Server PC.
- **Network card.** The MAC address of each NIC on the TeleVantage Server PC.
- **Dongle.** Serial number of a dongle, if one is installed on the TeleVantage Server PC along with the dongle drivers. See page 3-10 for information on how to obtain a dongle.

13. The next message box confirms the hardware ID that you selected since it is an important decision. Click **OK** to continue, or **Cancel** to go back and specify a different hardware ID.

14. Click **OK**. TeleVantage submits your license information to Vertical.

- If activation was successful, activated licenses are returned and automatically added to your system.



Click **OK** twice, to acknowledge the message and exit the System Settings dialog box.

- If activation was not successful, the reason is displayed. See “Licensing errors” on page D-6 for more information.

Important: Once your licenses are activated, back up the TeleVantage database according to the instructions in *Administering TeleVantage* so that you do not have to repeat the activation process if you ever need to restore the TeleVantage database.

For more information, see Appendix D, “Managing TeleVantage Licenses.”

Testing the TeleVantage Server

At this point in the installation or upgrade process, you should test the TeleVantage Server to make sure that it has been installed correctly. Testing the Server consists of starting the Server from the Device Monitor and checking for errors.

Note: The TeleVantage Server will not start until you have entered a valid Server license. See “Entering and activating your TeleVantage licenses” on page 10-16.

Important: If you have Dialogic PCI boards installed on the Server, perform the process described in “PCI boards not recognized at Server startup” in Appendix C in *Installing Dialogic Telephony Components* if you have not already done so. Otherwise, the Found New Hardware wizard will start after every Server restart. However, do not under any circumstances use the Found New Hardware wizard to install drivers for Dialogic boards.

To test the TeleVantage Server

1. Close all Windows applications, including the TeleVantage Administrator if it is running.
2. Shut down the TeleVantage Server. To do so:
 - Right-click the Device Monitor icon in the system tray and then click **Show Device Monitor**. If the Device Monitor is not running, start it manually. The default location is:

C:\Program Files\TeleVantage Server\tddevmon.exe

- Stop the TeleVantage Server by selecting **Tools > Stop Server**.

The status of the TeleVantage Server is displayed at the bottom of the Device Monitor.

3. To simulate a normal startup, restart the TeleVantage Server PC.

If you upgraded from a previous version of TeleVantage, the TeleVantage Server autostart setting is automatically reset to what it was before the upgrade. If the TeleVantage Server was set to autostart, go to step 6.
4. The TeleVantage splash screen indicates that the Device Monitor is starting. Open the Device Monitor by right-clicking the Device Monitor icon in the system tray. Then choose **Show Device Monitor** (by default, the Device Monitor starts minimized when you log on).
5. Start the TeleVantage Server from the Device Monitor by selecting **Tools > Start Server**.

After the TeleVantage Server starts, the Device Monitor displays the status of all station ports on the station boards and all trunks on the trunk boards. You can close the Device Monitor without affecting the operation of the TeleVantage Server.
6. Check for startup errors. Not all error messages are displayed in the Device Monitor, so you should also use the Windows Event Viewer to check the System Log for any startup warnings or Dialogic errors. To do so:
 - Choose **Start Menu > Programs > Administrative Tools > Event Viewer**. In the Tree pane, click **TeleVantage Log** to view TeleVantage or database server messages, warnings, or errors. Expand **System Log** to view operating system-related events.

Note: If you are not running the Windows Event Viewer on the TeleVantage Server, choose **Log > Select Computer**.

If you encounter database server errors, see “Troubleshooting database server problems” on page B-4. For TeleVantage Server-related problems, see “Troubleshooting TeleVantage Server problems” on page B-5.

When you are satisfied that the TeleVantage Server is running correctly, go to the next section, “Setting the TeleVantage Server to autostart.”

Setting the TeleVantage Server to autostart

Set the TeleVantage Server to autostart so that telephone service is automatically restored whenever the TeleVantage Server PC restarts.

- **Upgrading from a previous version of TeleVantage.** If the TeleVantage Server was set to autostart before the upgrade, you do not need to reset it now. Go to “Completing the TeleVantage Server installation” on page 10-24.
- **Installing TeleVantage for the first time.** When you are satisfied that the TeleVantage Server is working correctly, you should set the Server to start automatically according to the instructions in this section

Important: When the TeleVantage Server starts, it automatically starts the Dialogic drivers. Do not set the drivers to autostart in the Dialogic Configuration Manager. If the drivers are already running when the TeleVantage Server starts, the Windows Service Control Manager may experience problems.

To set the TeleVantage Server PC to autostart

1. Click **Start > Settings > Control Panel > Administrative Tools > Services**.
2. In the Services dialog box, locate and double-click **TeleVantage server**.
3. On the General tab of the TeleVantage Server Properties dialog box, select **Automatic** from the **Startup type** drop-down list.
4. Click **OK**, and then exit the Services dialog box.
5. To test automatic startup, first perform an orderly shutdown:
 - In the Device Manager, stop the TeleVantage Server by choosing **Tools > Shut down Server**.
 - In the Dialogic Configuration Manager (DCM), stop the Dialogic drivers. See Appendix D in *Installing Dialogic Telephony Components* for instructions.
6. Restart the TeleVantage Server PC.
7. In the Device Monitor, check the status of the TeleVantage Server. “Started” means that the autostart was successful.
8. Verify that the **Startup type** for the TeleVantage Server is **Automatic**, according to the instructions in steps 1-3. On subsequent reboots of the TeleVantage Server PC, the TeleVantage Server will start automatically.

Note: If you configure your TeleVantage system for e-mail notification, e-mail notification will not be enabled after Server startup until the TeleVantage user logs on to the system. E-mail notification is used to alert TeleVantage system administrators that the TeleVantage Server is being stopped and restarted.

Completing the TeleVantage Server installation

After you install and test the TeleVantage Server, you can perform any of the following tasks to complete the installation for your specific environment:

- Set access rights to the TeleVantage Server (see page 10-24.)
- Configure TeleVantage for use with a proxy server (see page 10-24.)
- Configure e-mail notification support (see page 10-25.)

Setting access rights to the TeleVantage Server

Make sure that any user who will use TeleVantage ViewPoint or run the TeleVantage Administrator remotely has network access to the TeleVantage Server.

Also make sure that each TeleVantage user can log on to a PC that is on the same network as the TeleVantage Server PC.

As a prerequisite, the user's PC must be able to see the TeleVantage Server in Network Neighborhood. Also, the buffer share on the TeleVantage Server must be accessible. Verify that it is accessible by attempting to open the buffer share in Network Neighborhood.

Configuring TeleVantage for use with a proxy server

If you use a proxy server to access the Internet from a local area network, you must configure your network in one of the ways described in this section. If you do not configure your network appropriately, Windows PCs that also use the proxy server will be unable to run TeleVantage workstation applications (such as ViewPoint or the Administrator) correctly.

If you do not use a proxy server, go to "Configuring e-mail notification and Exchange synchronization" on page 10-25.

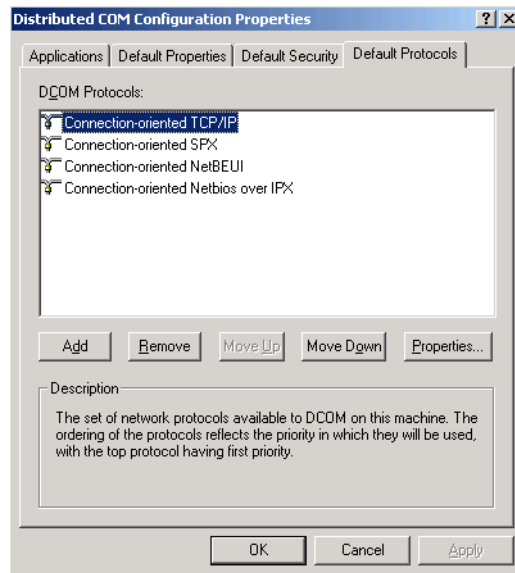
Configuration options

Configure your network in one of the following ways:

- Make sure that local IP traffic does not go through the proxy server (by means of local address translation tables).
- 2000/XP PC running a TeleVantage workstation application, change the protocol for client-server configuration to TCP (from the default UDP).

To change the protocol to TCP on a Windows PC

1. Choose **Start > Run**.
2. Enter `dcomcnfg.exe` in the **Open** field. The Distributed COM Configuration Properties dialog box opens.



3. If **Connection-oriented TCP/IP** is not at the top of the **DCOM Protocols** list, select it and click **Move Up** until it is the first protocol in the list.
4. Click **OK**.
5. Restart the PC.
6. Repeat steps 1-4 for each PC running a TeleVantage workstation application.

Configuring e-mail notification and Exchange synchronization

Configuring e-mail notification

You can configure TeleVantage to automatically send an e-mail message to any address whenever a user receives a new voice message. See "Requirements for e-mail notification" on page 3-15 for more information. Also see "Setting up e-mail notification and Exchange synchronization" in Chapter 3 of *Administering TeleVantage* for detailed configuration steps.

Note: The Microsoft Outlook outgoing mail format must be configured as Plain Text format on the TeleVantage Server PC in order for voice messages attached to e-mail notifications to be sent correctly as WAV audio files. For more information, see "E-mail notification WAV file attachments are incorrectly sent as .DAT files" on page B-11.

Sending e-mail notifications if you are using custom Outlook forms

If you are using custom Outlook forms (for example, you are using a product like Excendia Outlook-by-Phone), you need to set the TeleVantage Advanced Setting

Artisoft\Server\MAPI\MessageClass to **IPM.Note.OT.Voice**. To do so, use the TeleVantage Advanced Settings Editor (see page J-34 for instructions.)

Adding a timestamp to e-mail notifications

To add a timestamp containing the time when TeleVantage submitted the e-mail notification to your e-mail server, set the following TeleVantage Advanced Setting

Artisoft\Server\EmailNotifyAddSubmittedTime to **1**. To do so, use the TeleVantage Advanced Settings Editor (see page J-34 for instructions.) When this setting is set to **0** (the default), no timestamp is added.

The timestamp appears at the bottom of the e-mail notification.

Configuring Exchange synchronization

You can synchronize TeleVantage voice mail and Microsoft Exchange e-mail. See “Requirements for Exchange synchronization” on page 3-15 for more information.

To use Exchange synchronization, you may need to configure your network as follows:

- **If you are using Microsoft Exchange Server for your post office:** The TeleVantage mail user (user account) must be a domain user. See Appendix C, “Changing the Domain of the TeleVantage Server” for instructions.
- **If you are using Microsoft Exchange 2000 for your post office:** You need to give the TeleVantage mail user full access to all mailboxes. For more information, go to <http://support.microsoft.com> and search the Knowledge Base for article #262054.
- **If you are using TeleVantage on a non-Microsoft network:** If you are using a non-Microsoft network such as NetWare, you may have to install the network client for that network on the TeleVantage Server PC to establish communications between Windows and the e-mail post office.

Note: In order for Exchange synchronization to work, each user's Microsoft Outlook client must be configured to deliver messages to a mailbox on the Exchange Server. Exchange Server synchronization does not work if the user's Outlook client is configured to deliver messages to a PST file on the local computer.

Once your network is configured for Exchange synchronization, you also need to configure the TeleVantage Server.

To configure Exchange synchronization on the TeleVantage Server

1. Use the tools provided with your e-mail post office (see the documentation from the manufacturer) to create a mail user for the TeleVantage Server. The name you give this mail user appears on all e-mail notification messages, so you should use a name that indicates the purpose of the message, for example, “TeleVantage” or “VoiceMailReceived”.
2. Install and configure Microsoft Outlook for the TeleVantage mail user. Follow the instructions in the Outlook documentation.

Important: If you are using Microsoft Outlook 2000, install Outlook with full MAPI support. See “E-mail notification through Microsoft Outlook does not work if Outlook is installed in Internet Only mode” on page B-11. Also, select **Corporate or Workgroup** mode during installation and configuration (TeleVantage does not support **Internet only** mode in Outlook 2000.)

3. Configure the default MAPI profile for the TeleVantage user, as follows.
 - On the TeleVantage Server PC, log on using the account that you use to run TeleVantage. This is the same account that you provided during the installation of the TeleVantage Server.
 - Click **Start > Settings > Control Panel**, and double-click the **Mail** icon.
 - Click **Add** to start the wizard. Follow the Setup wizard directions to configure a MAPI profile. This MAPI profile must be the default profile for the TeleVantage mail user.
4. Set the default MAPI profile as follows:
 - Double-click the **Mail** icon from Control Panel, and then click **Show Profiles**.
 - From the **When starting Microsoft Outlook, use this profile** drop-down list, select the MAPI profile that you just configured.
 - Click **Close**.

To complete the configuration of Exchange synchronization, see “Setting up e-mail notification and Exchange synchronization” in Chapter 3 of *Administering TeleVantage*. Once configured, Exchange synchronization will be available the next time the TeleVantage Server is started.

Upgrading Windows on the TeleVantage Server PC _____

If at a later time you plan to upgrade the TeleVantage Server to Windows XP SP2 or Windows Server 2003 SP1, see page F-6 for important information that may apply to you.

Where to go next _____

When you have successfully installed the TeleVantage Server and the Administrator on the TeleVantage Server PC, go to Chapter 11.

INSTALLING TELEVANTAGE WORKSTATION APPLICATIONS

CHAPTER CONTENTS

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Introduction

The TeleVantage workstation applications are a set of programs that can optionally be installed on other PCs. The workstation applications connect with the TeleVantage Server remotely over your network. With these applications, users can take full advantage of how TeleVantage integrates the PC and the phone. The following TeleVantage components are the workstation applications:

- TeleVantage ViewPoint
- The TeleVantage Administrator
- The TeleVantage TAPI Service Provider
- The TeleVantage Contact Manager Assistant
- The TeleVantage Archived Recording Browser

Note: You installed the TeleVantage Administrator on the TeleVantage Server PC according to the instructions in Chapter 10. Before installing the Administrator on other PCs in the network, see “About installing the TeleVantage Administrator” on page 11-4.

Performing unattended installs

For information on installing the TeleVantage workstation applications without user input, see Appendix E.

Requirements

Important: In order to install any of the TeleVantage workstation applications on a PC, you must be logged on as a user with Administrator rights.

You can install the TeleVantage workstation applications on any Windows PC on the network, including the TeleVantage Server, that meets the requirements described in Chapter 3.

- For Administrator and ViewPoint PC requirements, see page 3-18.
- For TAPI SP and Contact Manager Assistant PC requirements, see page 3-19.

Terminal server support

You can install the workstation applications on a terminal server running Citrix MetaFrame or Windows Terminal Services. For instructions, see Appendix A.

Installation checklist

Use the following checklist as you install and configure the TeleVantage workstation applications.

- **Windows 98 systems.** Download DCOM 98 onto your TeleVantage Server so that TeleVantage workstation applications can be installed on Windows 98 systems.
- **Windows NT systems.** Upgrade the PC where you will install any of the workstation applications to at least Windows NT Service Pack 6a or higher before starting the installation.
- Install the TeleVantage Administrator on the PCs of users who need to administer the TeleVantage Server, queues, auto attendants, and so forth. You can limit each user's administrator privileges as described in *Administering TeleVantage*.
- Install TeleVantage ViewPoint on the PCs of users who will manage their calls and voice messages from their desktop.
- Install the TeleVantage TAPI Service Provider on the PCs of users who will run the Contact Manager Assistant or want to use some other TAPI-compliant application to place calls using TeleVantage.
- Install the TeleVantage Contact Manager Assistant on the PCs of users of Microsoft Outlook, GoldMine, GoldMine FrontOffice, or GoldMine Business Contact Manager will receive screen pop notification of incoming calls.
- Synchronize system clocks. This step ensures that message time stamps set by the Server clock match the time on the PCs of users.

Windows 98 PC requirements

If your network does not have any Windows 98 PCs that need to run one or more of the TeleVantage workstation applications, go to the next section. Otherwise, install Microsoft DCOM 98 on each Windows 98 PC.

Because Microsoft does not allow other companies to redistribute DCOM 98, you must download it yourself according to the following instructions.

Once downloaded onto the TeleVantage Server PC, DCOM 98 is automatically installed as needed when you install one or more TeleVantage workstation applications on a Windows 98 PC.

Note: If you first run the Workstation Setup and attempt to install ViewPoint or the Administrator workstation application on a Windows 98 SE PC without a previous version of TeleVantage installed or DCOM 98 installed, you will receive an MDAC installation error. If this happens, see "TeleVantage ViewPoint and Administrator fail to install on Windows 98 SE if DCOM 98 is not previously installed" on page B-9.

To download DCOM 98

1. Go to the following location and search using the keyword 'DCOM 98':
<http://www.microsoft.com/downloads>
2. Follow the on-screen instructions.
3. In the File Download dialog box, click **Save this program to disk**.
4. Save the downloaded file (**dcom98.exe**) to the following location:
C:\Program Files\TeleVantage Server\NetSetup\DCOM98

Installing the TeleVantage workstation applications _____

About installing the TeleVantage Administrator

You can install the TeleVantage Administrator on any Windows PC on the network that meets the requirements described in “Administrator and ViewPoint requirements” on page 3-18.

If you install more than one TeleVantage Administrator, you must coordinate work among the users who have authority to run the Administrator.

Important: If two people make changes to the same data, only the changes that are saved last are retained.

For information about setting up TeleVantage users with administrative privileges, see *Administering TeleVantage*.

About installing TeleVantage ViewPoint

TeleVantage ViewPoint is the most efficient way to use TeleVantage, and some TeleVantage features are available only through ViewPoint. However, ViewPoint is not required in order to make and receive calls, and most TeleVantage features can be accessed without it by using the telephone commands. See *Using TeleVantage* for a list of ViewPoint-only features.

You can install ViewPoint on any Windows PC on the network that meets the requirements described in “Administrator and ViewPoint requirements” on page 3-18. See “TeleVantage license requirements” on page 3-16 for information about ViewPoint license requirements.

The TeleVantage Call Center and Call Center Reporter are installed automatically with ViewPoint. See “TeleVantage license requirements” on page 3-16 for information about required Call Center Agent and Call Center Reporter licenses.

About installing the TeleVantage TAPI Service Provider

In addition to the PC requirements described on page 3-19, a user must have the following to install and use the TAPI Service Provider:

- A TeleVantage user name and station ID. You cannot use station ID 0.
- A Windows telephony location that allows the user to place calls. Typically, you need to configure your area code and external dialing prefix, for example “9”.

Using the TeleVantage Workstation Setup

The TeleVantage Workstation Setup can install any or all of the workstation applications. On all PCs except the TeleVantage Server, if an older version of the TeleVantage Administrator or ViewPoint is installed, Workstation Setup will automatically run when you start the Administrator or ViewPoint.

If you have upgraded your TeleVantage Server from a previous version, any user who attempts to run the old versions of TeleVantage ViewPoint or the Administrator receives a message saying that new versions need to be installed. All workstation applications detected on the PC will be upgraded. However, this message does not appear and the upgrade does not take place if the user only has TAPI Service Provider or Contact Manager Assistant installed. If you are upgrading and have users who only use those applications, you should notify them that they need to install the new software as described later in this chapter.

If you encounter problems installing the TeleVantage workstation applications, or running them after installation, see “Troubleshooting workstation application problems” on page B-7.

To install the TeleVantage workstation applications

1. Review the “ViewPoint/Administrator installation tips” on page B-8.
1. Log on to the PC on which the workstation applications will be installed as a user with administrator privileges.
2. Close all open Windows applications.
3. Start the TeleVantage Workstation Setup by running **setup.exe**, located in the **Netsetup** directory on the TeleVantage Server. The default location is:
\\<TeleVantage Servername>\Netsetup\setup.exe
4. When Workstation Setup starts, follow the on-screen instructions. If you cannot run the Workstation Setup, see “‘Corrupt installation’ dialog box” on page B-9.
5. Review the License Agreement. Click **I accept the terms in this license agreement**, and then click **Next** to continue.
6. In the Customer Information dialog box, enter the **User Name** associated with this PC and **Organization**. If you want only this user to be able to run the workstation applications from this PC, select **Only for me**. Click **Next** to continue.

7. In the TeleVantage Server Information dialog box, enter the **TeleVantage Server Name** and the **Telephone Station ID** of the phone that will be used by the person at this PC.

The station ID corresponds to the port number on the station board to which the phone is connected. To hear your station ID, pick up the phone and dial ***0**.

Note: If there is not a TeleVantage phone near this PC, enter a station ID of 0. Without a phone, the user at this PC will be able to perform all functions with the exception of managing calls and recording voice prompts. If you enter a station ID of 0, when you click **Next** the No Telephone Station ID Specified dialog box opens to make sure that you understand this limitation, and gives you the opportunity to go back and enter a valid station ID.

Click **Next** to continue.

8. In the Setup Type dialog box, select one of the following:
 - Select **Typical** to install the listed workstation applications in the default location. When installing TeleVantage for the first time, only ViewPoint is installed. When upgrading from a previous version of TeleVantage, Workstation Setup detects the workstation applications that are installed, and upgrades those applications to the current version.

Click **Next** to continue. Go to step 10.

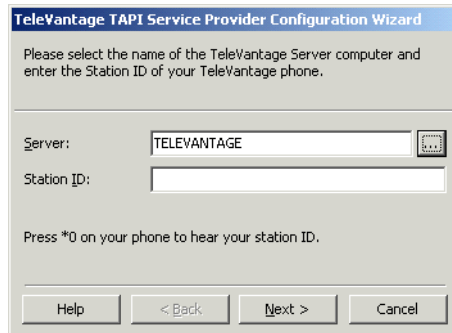
- Select **Custom** to choose which workstation applications to install, including the TAPI Service Provider, Contact Manager Assistant, and Archived Recording Browser, or to change the installation drive or folder.

Click **Next** to continue.

9. In the Custom Setup screen, you can do any of the following:
 - Click a workstation application to see a description of it as well as the amount of disk space it requires.
 - Click **Space** to check the available space on each hard drive on the PC.
 - Click **Change** to change the destination drive or folder where the selected workstation application will be installed. You can specify a different location for each workstation application.
 - If you do not want to install one of the listed workstation applications on this PC, click the drop-down list for the application and then select **This feature will not be available**.
 - To install another listed workstation application, click the drop-down list for the application and then select **This feature will be installed on local hard drive**.

Click **Next** to continue.

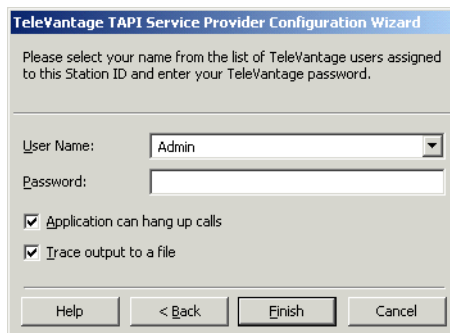
10. In the Ready to Install screen, click **Install**. Installation may take several minutes.
11. When Workstation Setup finishes copying files, if you are installing the TAPI Service Provider, the TAPI Service Provider Configuration Wizard is displayed.



The screenshot shows the first step of the 'TeleVantage TAPI Service Provider Configuration Wizard'. The title bar is blue with white text. The main window has a light gray background. At the top, there's a blue header bar with the title. Below it, a message says: 'Please select the name of the TeleVantage Server computer and enter the Station ID of your TeleVantage phone.' There are two input fields: 'Server:' with the text 'TELEVANTAGE' and a small icon to its right, and 'Station ID:' which is empty. Below these fields, a note says: 'Press *0 on your phone to hear your station ID.' At the bottom, there are four buttons: 'Help', '< Back', 'Next >', and 'Cancel'.

- Enter the name of the TeleVantage **Server PC** and the **Station ID** of the phone that will be used by the person at this PC.

The station ID corresponds to the port number on the station board to which the phone is connected. To hear the station ID, pick up the phone and dial ***0**. Click **Next** to continue.



The screenshot shows the second step of the 'TeleVantage TAPI Service Provider Configuration Wizard'. The title bar is blue with white text. The main window has a light gray background. At the top, there's a blue header bar with the title. Below it, a message says: 'Please select your name from the list of TeleVantage users assigned to this Station ID and enter your TeleVantage password.' There are two input fields: 'User Name:' with a drop-down menu showing 'Admin' and a small arrow to its right, and 'Password:' which is empty. Below these fields, there are two checkboxes, both of which are checked: 'Application can hang up calls' and 'Trace output to a file'. At the bottom, there are four buttons: 'Help', '< Back', 'Finish', and 'Cancel'.

- Select the **User Name** of the person assigned to this station ID from the drop-down list, and enter the user's **Password**.

Note: If the person at this PC will be using GoldMine contact management software, deselect the **Application can hang up calls** checkbox.

Click **Finish** to continue.

- If you are installing the TAPI Service Provider for the first time, Workstation Setup prompts you to define a Windows telephony dialing location for your PC, which is required to place outbound calls. If you see this prompt, click **OK**.

In the Location Information dialog box, select your country from the drop-down list, enter your area code, and enter the number you must dial to get an outside line, for example “9”. Click **OK**.

In the Phone and Modem Options dialog box, select the location from which you are dialing, and click **OK**.

12. In the Install Completed screen, select the **Show What's New** checkbox to see a complete listing of the new features available in this version of TeleVantage. Click **Finish** to complete the installation.

Note: If after installing the TeleVantage workstation applications according to the previous instructions you upgrade a Windows 98 or ME workstation PC to Windows XP SP2 or Windows 2003 Server SP1, you need to repair the workstation applications. To do so, from the Windows Control Panel, click **Add/Remove Programs**, select **TeleVantage workstation applications** and then click **Change**. When the TeleVantage Workstation Setup starts, follow the on-screen instructions and click **Repair** in the Program Maintenance screen.

Configuring the TeleVantage workstation applications _____

Configuring the TeleVantage Administrator and ViewPoint

For information about customizing and using the TeleVantage Administrator, see *Administering TeleVantage*.

For information about customizing and using TeleVantage ViewPoint, see *Using TeleVantage*.

Configuring the TeleVantage TAPI Service Provider

Workstation Setup runs the TAPI Service Provider Configuration wizard automatically when you install the TAPI Service Provider for the first time on a PC. You can run the Configuration Wizard later, for example to change your station ID. To do so:

1. Click **Start > Programs > Vertical TeleVantage > TeleVantage TAPI Service Provider Configuration Wizard**.
2. Follow the on-screen instructions. Click **Help** for more information.

Configuring your contact manager for use with the TAPI Service Provider

Before making calls from the contact manager, you must configure it to recognize the TAPI Service Provider. Use one or more of the following procedures as needed.

To configure Outlook

1. Open the Contacts view in Outlook.
2. Choose **Actions > Call Contact > New Call**.
3. In the New Call dialog box, click **Dialing Options**.
4. In the Dialing Options dialog box, verify that **Connect Using Line** is set to “TeleVantage Line 1.” This option is available after the TAPI Service Provider is installed.
5. Click **OK**.

To configure GoldMine, GoldMine FrontOffice, or GoldMine Business Contact Manager

Use the following procedure after you refer to the documentation that came with the product:

1. Choose **Edit > Preferences**.
2. Click the **Modem** tab.
3. Under **Modem Settings**, verify that **TAPI Line** is set to “TeleVantage Line 1.” This option is available after the TAPI Service Provider is installed.
4. Click **OK**.

To configure Act!

1. In Act!, Choose **Edit > Preferences**.
2. Click the **Dialer** tab.
3. Select the **Use Dialer** checkbox.
4. Under **Modem** or **Line**, verify that “TeleVantage Line 1” is selected. This option is available after the TAPI Service Provider is installed.
5. To receive screen pops with contact information when a contact calls, select the **Lookup contact using caller ID** checkbox. Deselect the checkbox if you do not want to receive screen pops.
6. Click **OK**.

Calling from another application

After installing the TAPI Service Provider, users can call contacts by using the instructions provided with their contact managers. Calls appear in their Call Logs as if they had dialed them from ViewPoint or the phone.

Configuring the TeleVantage Contact Manager Assistant

1. If the Contact Manager Assistant is not running, start it by clicking **Start > Programs > Vertical TeleVantage > TeleVantage Contact Manager Assistant**.
2. If only the Contact Manager Assistant splash screen appears, right-click the Outlook, GoldMine, GoldMine FrontOffice, or GoldMine Business Contact Manager icon on the system tray at the lower right of your screen. Select **Setup**.
3. Click **Help** for detailed instructions.

Synchronizing system clocks

It is recommended that you make sure that the system clocks on the TeleVantage Server PC and user PCs are synchronized. This ensures that message time stamps, which are set by the Server clock, agree with the time displayed on the user PCs.

In Microsoft domain-based networks, you can synchronize the workstation clock with the TeleVantage Server clock by including the following statement in the logon script that executes when the workstation connects to the domain controller:

```
net time \\<TeleVantageServerName> /set /yes
```

Upgrading Windows on a workstation PC to Windows

If at a later time you plan to upgrade a PC where any of the TeleVantage workstation applications are installed to Windows XP SP2 or Windows Server 2003 SP1, see page F-6 for important information that may apply to you.

Where to go next

When you have installed the TeleVantage workstation applications, go to Chapter 14 if you want to install TeleVantage Web Services to support ViewPoint Web Access, or Chapter 14 if you want to install TeleVantage Multi-line TAPI Service Provider.

AFTER INSTALLING TELEVANTAGE

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Setting up and configuring your TeleVantage system	12-2

Your TeleVantage system so far _____

You should have already completed the following tasks:

- Installed the Windows Server
- Installed Dialogic HMP software or Dialogic hardware and drivers
- Installed and configured the TeleVantage database server
- Installed the TeleVantage Server
- Added and activated your TeleVantage licenses
- Install workstation applications (optional)

Note: Be sure you have finished all of these tasks before you proceed.

Installing optional TeleVantage services _____

Go to the chapters listed to install any of the optional TeleVantage services:

- Go to Chapter 13 to install TeleVantage Web Services to support TeleVantage ViewPoint Web Access.
- Go to Chapter 14 to install TeleVantage Multi-line TAPI Service Provider on any Server that needs multiple lines for TAPI support.
- Go to Chapter 15 to install TeleVantage Archived Recording on the archive server to support mailbox recording archiving and the Archived Recording Browser.
- Go to Chapter 16 to install TeleVantage Station Message Detail Recording (SMDR) Service to send real-time call data from TeleVantage to a third-party application.
- Go to Chapter 17 to install the Tftpd32 TFTP Server to download updates to some SIP and H.323 phones' firmware and configuration files.

Setting up and configuring your TeleVantage system _____

After you install the TeleVantage components and optional services according to the instructions in this manual, you must set up and configure your system using the TeleVantage Administrator.

See *Administering TeleVantage* and the TeleVantage Administrator online Help.

Section 3

Installing TeleVantage Services

INSTALLING TELEVANTAGE WEB SERVICES

CHAPTER CONTENTS

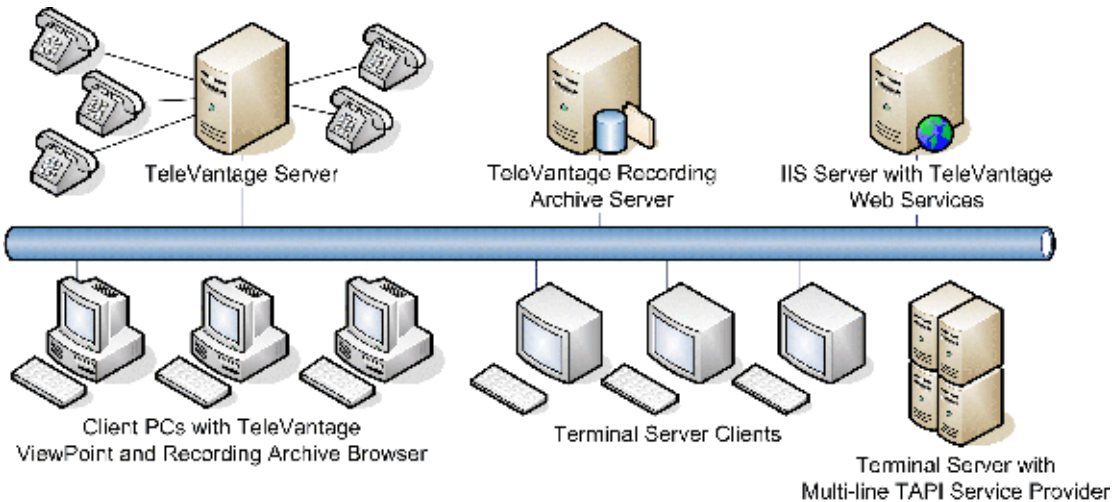
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Introduction

TeleVantage Web Services is the TeleVantage component that allows you to offer users TeleVantage ViewPoint Web Access.

ViewPoint Web Access is a version of TeleVantage ViewPoint that users access by using their Web browsers. Because ViewPoint Web Access is HTML-based, users can access it from non-Windows platforms such as Macintosh and UNIX. ViewPoint Web Access gives users access to most TeleVantage features. For information about using ViewPoint Web Access, see *Using TeleVantage* and the ViewPoint Web Access online Help.

The following graphic shows TeleVantage Web Services in a typical installation:



Requirements

For your system to offer ViewPoint Web Access, you must install the following on a PC that will become your Web server:

- Microsoft Internet Information Server (IIS) 4.0 or higher
- Windows Internet Explorer 5 or higher
- TeleVantage Web Services

For a complete list of important requirements for the Web server PC, see “TeleVantage Web Services requirements” on page 3-20.

Windows Internet Explorer requirements

If you need to upgrade, go to the following location to obtain the latest version:

<http://www.microsoft.com/downloads>

Important: Versions of Internet Explorer with security patches may not be able to connect to a TeleVantage Server that contains an underscore in its name. This behavior was introduced by Microsoft to improve security. There are two workarounds—rename the TeleVantage Server, or use the Server's IP address in place of its name when you run ViewPoint Web Access. For more information, go to **<http://support.microsoft.com>** and search the Knowledge Base for article #Q321232.

Terminal server support

You can install TeleVantage Web Services on a terminal server running Citrix MetaFrame or Windows Terminal Services. For instructions, see Appendix A.

Installing Microsoft Internet Information Services _____

Do one of the following:

- If your Web server is a Windows Server 2003 PC, you need to install IIS manually and then enable dynamic content. Go to “Using TeleVantage Web Services with Windows 2003 Server” on page 13-3.
- If your Web server is a Windows 2000/XP Server PC, IIS was installed automatically with Windows 2000/XP Server. Go to “Installation steps” on page 13-5.
- If your Web server is a Windows NT 4.0 Server PC, install the Windows NT 4.0 Option Pack, which includes IIS. (Your copy of Windows NT 4.0 Server may contain the Windows NT 4.0 Option Pack.) When you install the Option Pack, choose the **Typical** installation and then follow the on-screen instructions to complete the installation. If you are prompted to restart your PC, do so.

Using TeleVantage Web Services with Windows 2003 Server

Microsoft Internet Information Services (IIS) is no longer installed by default with Windows 2003 Server. Also, once installed manually, IIS starts in highly secure mode where many of the advanced Web services features are disabled. Both of these changes were introduced by Microsoft to enhance security on Web servers.

You must install IIS and then enable dynamic content features in order for TeleVantage Web Services to work. To do so:

1. From the Start menu, select **Administrative Tools > Internet Information Services (IIS) Manager**.
2. In the left pane, expand the node for the Web server that you will use as the TeleVantage Web Server, and then click **Web Service Extensions**.

3. In the right pane, click **Allow all Web service extensions for a specific application**.
4. Select **Active Server Pages** from the drop-down list, and then click **OK**.

Setting up a secure Web site on the TeleVantage Web server

In order to set up a secure Web site so that all transactions are secured by Secure Socket Layer (SSL) encryption, you need to do the following:

- Create a certificate request.
- Submit it to a Certificate Authority, an organization that offers certification services for Microsoft Internet Information Services (IIS). Two examples are www.Verisign.com and www.thawte.com.
- Install the signed certificate on the TeleVantage Web server.

You must repeat this process for each individual Web site on which you want to offer secure transactions.

To create a certificate request

1. On the Web server, start the Microsoft Internet Service Manager. To do so, from the Start menu, choose **Programs > Administrative Tools > Internet Service Manager**.
2. Right-click the Web site on which you want to install a certificate, and then click **Properties**. The Properties dialog box opens.
3. On the Directory Security tab, click **Server Certificate** under Secure Communications. The Web Server Certificate Wizard starts.
4. On the Server Certificate screen, click **Create a new certificate**. Click **Next** to continue.
5. Follow the onscreen instructions to create a new certificate request.

To submit the certificate request to the Certificate Authority

1. Contact the Certification Authority of your choice.
2. Follow their instructions to submit your certificate request. The Certificate Authority will return a signed certificate to you.

To install the signed certificate on the TeleVantage Web server

1. Follow steps 1-3 of creating a certification request, above.
2. In the Install Certificate screen, click **Process the pending request and install the certificate**. Click **Next** to continue.
3. Follow the onscreen instructions to install the certificate.

4. To configure SSL on the Web site, click **Edit** on the Directory Security tab.
5. Click **Require secure channel (SSL)**, and then click **OK**.
6. Click **Apply**, and then click **OK**.
7. Browse to the Web site by typing `https://<Web site name>`. If the page opens, you have successfully installed your certificate. Once you have successfully installed and configured your certificate, you will no longer be able to browse to the Web site by typing `http://<Web site name>`.

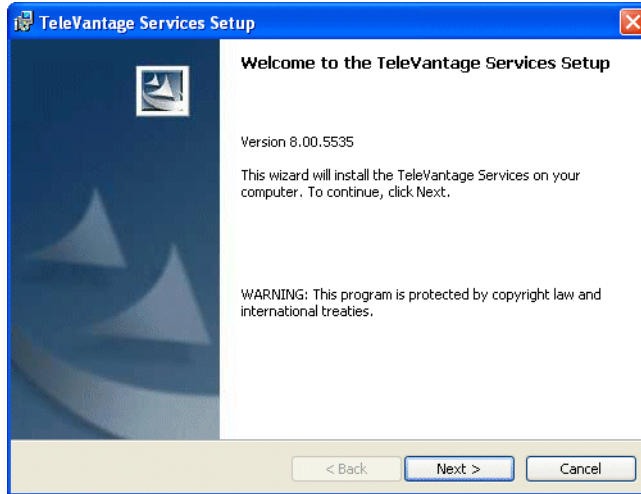
For more information about certificate services, go to the Microsoft Knowledge Base at <http://support.microsoft.com/> and search for article 299875, "HOW TO: Implement SSL on a Windows 2000 IIS 5.0 Computer.

Installation steps

1. Close all applications running on the Web server.
If you are installing Web Services on the TeleVantage Server PC (not recommended for security and CPU load reasons), shut down the TeleVantage Server and Dialogic System Service. You do not need to close your database server.
2. Insert the Master CD. If the Master Setup does not start automatically, run **autorun.exe** from the root directory on the Master CD.
3. Click **TeleVantage Services**.

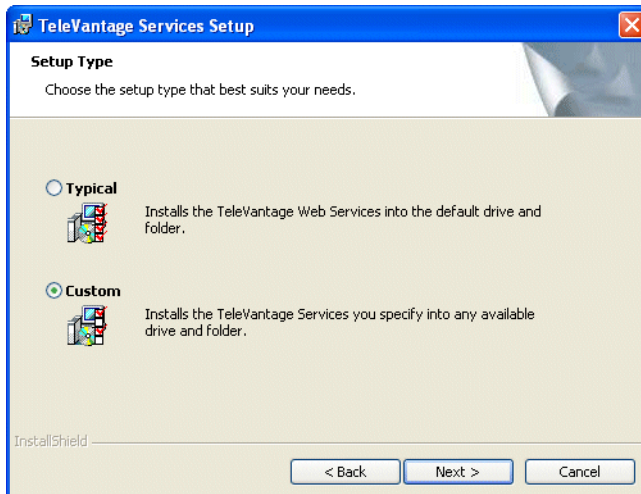


4. The TeleVantage Services Setup starts.

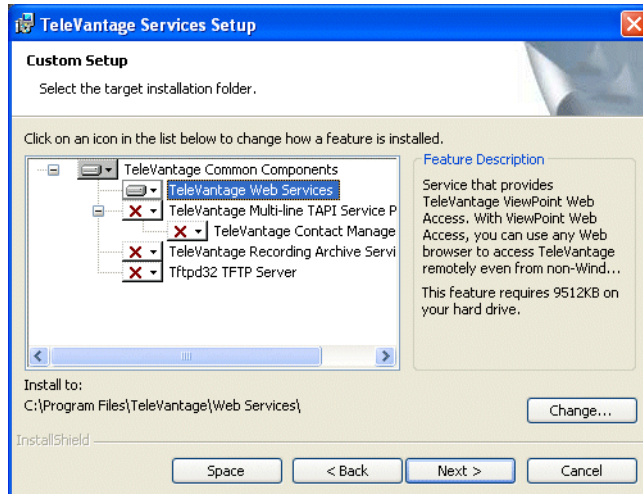


Follow the on-screen instructions.

5. In the Setup Type dialog box, click **Custom**, and then click **Next** to continue.



6. In the Custom Setup dialog box, select **TeleVantage Web Services**, and deselect the other features.



You can also do any of the following:

- Click **Space** to check the available space on each hard drive on the PC.
- Click **Change** to change the destination drive or folder where TeleVantage Web Services will be installed.

Click **Next** to continue.

7. If you are installing TeleVantage Web Services on the TeleVantage Server PC, Setup warns you that for performance and security reasons it is recommended, but not required, that you install Web Services on a different PC.

Click **OK** to dismiss the warning and then click **Next** to continue with the installation, or click **Cancel** to exit Setup.

8. In the Ready to Install dialog box, click **Install**. If you are prompted to restart your PC, do so.

TeleVantage Web Services starts automatically whenever the Web server is restarted.

Running ViewPoint Web Access

If you get “The page cannot be displayed” or other error messages while running ViewPoint Web Access, see “Troubleshooting TeleVantage Services problems” on page B-13.

Logging on to the TeleVantage Web server

After TeleVantage Web Services is installed, you can run ViewPoint Web Access from any Web browser by entering the URL according to the following format.

```
http://<Webserver>/TeleVantage
```

Replace <Webserver> with the name of the PC running the TeleVantage Web Services or with its IP address, as in the following examples:

```
http://TeleVantage/TeleVantage
```

```
http://192.168.1.6/TeleVantage
```

Logging on to alternate TeleVantage Servers

You can use ViewPoint Web Access to log on to other TeleVantage Servers, besides the one TeleVantage Web Services points to by default. This allows one PC running TeleVantage Web Services to access multiple TeleVantage Servers. To do so, enter the URL according to the following format:

```
http://<Webserver>/TeleVantage?Server=<TeleVantageServerName>
```

For example:

```
http://TeleVantage/TeleVantage?Server=TeleVantage2
```


INSTALLING TELEVANTAGE MULTI-LINE TAPI SERVICE PROVIDER

CHAPTER CONTENTS

Introduction	14-2
Installing the Multi-line TAPI Service Provider.	14-2
Configuring the Multi-line TAPI Service Provider	14-6

Introduction

You can install TeleVantage Multi-line TAPI Service Provider (TSP) on any server that needs multiple lines for TAPI support, typically a Citrix MetaFrame or Windows Terminal Services server. If necessary, the Multi-line TSP can be installed on the TeleVantage Server, for example to support a custom multi-line TAPI application that does not use Windows Terminal Services.

For a graphic showing the TeleVantage Multi-line TSP in a typical installation, see page 13-2.

The Multi-line TSP provides TAPI screen pops and TAPI dialing for multiple users with TAPI-compatible applications such as Act!. The Multi-line TSP can be used with the Contact Manager Assistant to provide screen pops to Microsoft Outlook, GoldMine, and GoldMine FrontOffice as well.

Note: TeleVantage also includes the basic single-line TSP, which should be used on individual workstations. See Chapter 11 for installation instructions.

Important: If the stations on the TeleVantage Server are reordered for any reason (for example, stations are added or deleted, or a Dialogic board that provides station resources is added or removed), applications that use the Multi-line TSP (Act!, Goldmine, and so forth) may no longer work. To resolve the problem, after the TeleVantage Server is restarted, be sure to restart the Terminal Services PC to re-initialize TAPI.

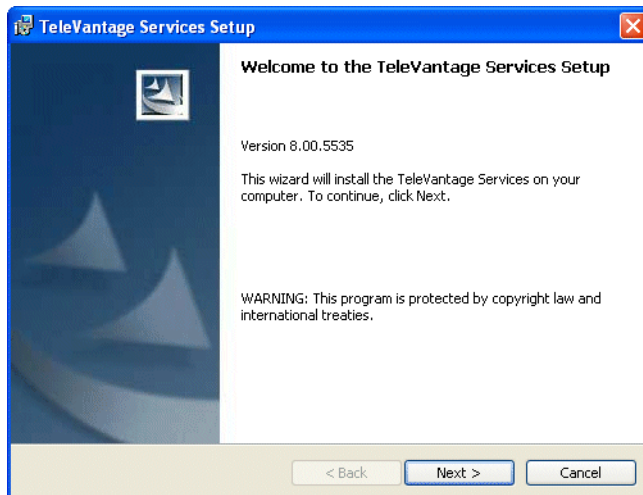
Installing the Multi-line TAPI Service Provider

1. Close all applications running on the PC where you are installing the Multi-line TSP.
2. If you are installing the Multi-line TSP on a terminal server, do the following:
 - Click **Start > Settings > Control Panel > Add/Remove Programs > Add New Programs > CD or Floppy**.
 - When prompted to insert a floppy disk or CD, click **Next** to continue.
 - In the Run Installation Program dialog box, click **Browse**.
 - Browse to the network location of the TeleVantage Master CD, or to the zip file that you extracted in step 1 on page 10-2. In the **\Server** folder, click **TVServicesSetup.exe**, and then click **Open**.
 - Click **Finish**, and then go to step 5.
3. If you are installing the Multi-line TSP on the TeleVantage Server, insert the Master CD. If the Master Setup does not start automatically, run **autorun.exe** from the root directory on the Master CD.

4. Click **TeleVantage Services**.

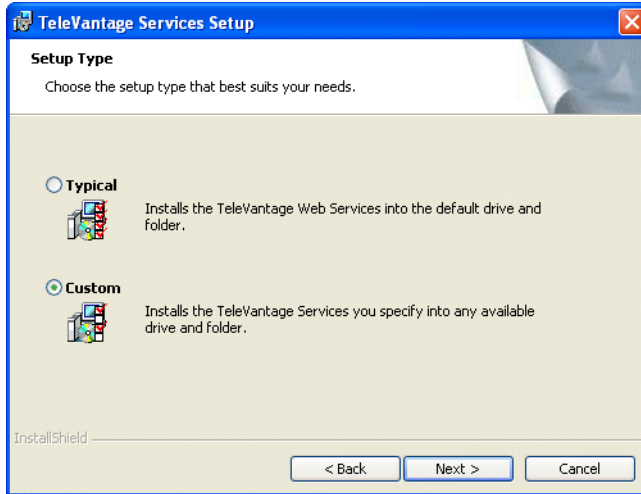


5. The TeleVantage Services Setup starts.



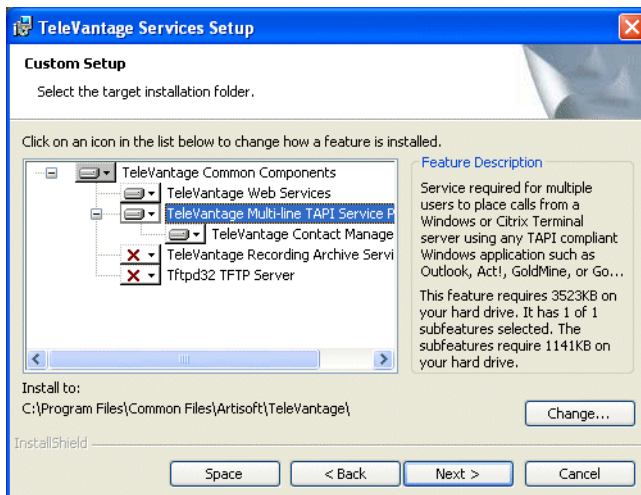
Follow the on-screen instructions.

6. In the Setup Type dialog box, select **Custom**, and then click **Next** to continue.



7. In the Custom Setup dialog box, select **TeleVantage Multi-line TAPI Service Provider**, and deselect the other features. (If you have already installed TeleVantage Web Services, that feature is detected and pre-selected—you do not need to deselect it.)

Optionally, select **TeleVantage Contact Manager Assistant** so that users receive screen pops when Outlook or GoldMine contacts call them (you do not need to install the Contact Manager Assistant to receive screen pops from Act!).



You can also do any of the following:

- Click a component to see a description of it as well as the amount of disk space required to install it.
- Click **Space** to check the available space on each hard drive on the PC.
- Click **Change** to change the destination drive or folder where the selected component will be installed. You can specify a different location for each component.

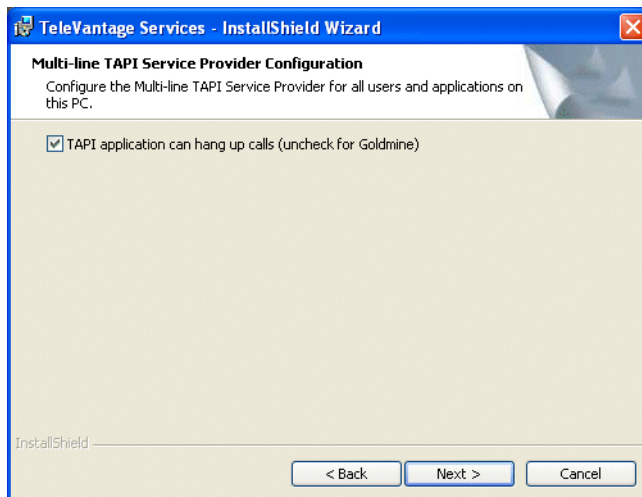
Click **Next** to continue.

8. If you are installing the TeleVantage Multi-line TSP on the TeleVantage Server PC, Setup warns you that for performance and security reasons it is recommended, but not required, that you install the Multi-line TSP on a different PC.

Click **OK** to dismiss the warning and then click **Next** to continue with the installation, or click **Cancel** to exit Setup.

9. In the Multi-line TAPI Service Provider Configuration dialog box, select the checkbox if you want TAPI applications to be able to hang up calls. Note that this setting applies to all users and applications on this server.

Important: This checkbox must be deselected for GoldMine users.



10. In the Ready to Install dialog box, click **Install**. If you are prompted to restart your PC, do so.

The TeleVantage Multi-line TSP starts automatically whenever the server is restarted.

Configuring the Multi-line TAPI Service Provider

This section describes how to perform the following steps to configure the TeleVantage Multi-line TSP for use with TAPI applications.

- Basic configuration (required). See page 14-6.
- Connecting to multiple TeleVantage Servers. See page 14-6.
- Restricting station access to users when using the Multi-line TSP. See page 14-6.
- Configuring TAPI applications for the Multi-Line TAPI Service Provider. See page 14-6.

Basic configuration (required)

1. From the Start menu, choose **Settings > Control Panel > Phone and Modem Options**.
2. On the Advanced tab, click **Add**.
3. In the Add Provider dialog box, click **TeleVantage Multiline Service Provider** and then click **Add**.
4. Close the Phone and Modem Options dialog box.

Connecting to multiple TeleVantage Servers

If you want the Multi-line TSP to be able to connect to multiple TeleVantage Servers, add the following Windows registry key for **each** Server, where **<Server>** is either a NetBios name (for example, “TeleVantage”) or an IP Address (for example, “123.12.76.102”):

HKLM\Software\Vertical\TeleVantage\Client\MultilineTSP\<ServerName>

For instructions on how to change registry settings, see page J-2.

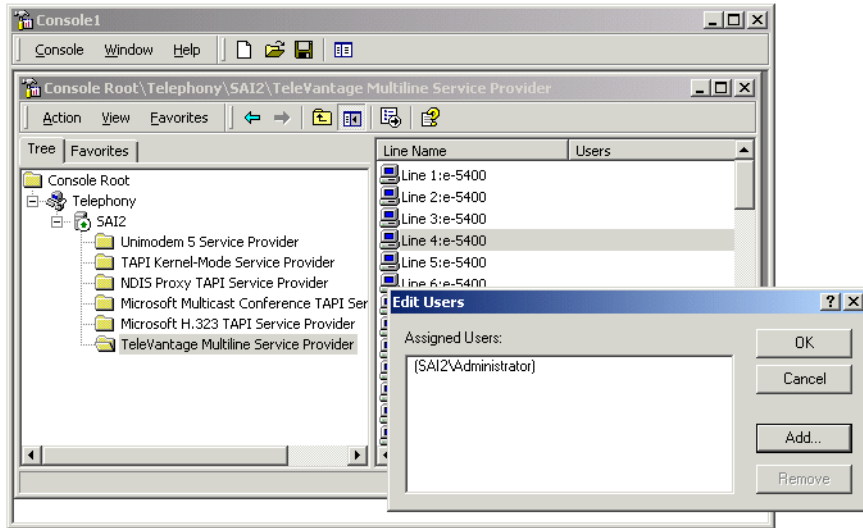
Restricting station access to users when using the Multi-line TSP

Without further configuration, all users of the Multi-line TSP can see—and make calls using—all stations on the TeleVantage Server, instead of just their own station.

You can restrict station access on a per-user basis via the Microsoft Management Console (MMC.) For more information about using and configuring the Telephony MMC, see the following Knowledge Base article at the Microsoft Support Web Site:

<http://support.microsoft.com/default.aspx?scid=kb;en-us;259375>

The following graphic shows the Telephony MMC being used to assign TAPI Line 4 to the TeleVantage user “Administrator”:



Configuring TAPI applications for the Multi-Line TAPI Service Provider

This section describes how to configure the following TAPI applications to use the Multi-line TSP:

- GoldMine. See page 14-7.
- Act!. See page 14-8.
- Microsoft Outlook. See page 14-8.
- TeleVantage Contact Manager Assistant (Outlook or GoldMine users only.) See page 14-8.

Configuring GoldMine for the Multi-Line TAPI Service Provider

Perform the following configuration steps from the PC of each GoldMine user who will use the Multi-line TSP.

1. In GoldMine, choose **Edit > Preferences**.
2. On the Modem tab, select the entry with the user’s station ID from the **TAPI Line** drop-down list. (To hear the station ID, pick up the user’s phone and dial *0.)

For example, select the following entry to connect to the TeleVantage Server named MainServer from station ID 6:

15: Line 6:MainServer

3. Configure the TeleVantage Contact Manager Assistant as described on page 14-8.

Configuring Act! for the Multi-Line TAPI Service Provider

Perform the following configuration steps from the PC of each Act! user who will use the Multi-line TSP.

1. In Act!, choose **Edit > Preferences**.
2. On the Dialer tab, select the **Use Dialer** checkbox.
3. Select the entry with the user's station ID from the **Modem or line** drop-down list. (To hear the station ID, pick up the user's phone and dial *0.)

For example, select the following entry to connect to the TeleVantage Server named MainServer from station ID 22:

Line 22:MainServer

Configuring Outlook for the Multi-Line TAPI Service Provider

Perform the following configuration steps from the PC of each Outlook user who will use the Multi-line TSP.

1. In Outlook, open the Contacts view.
2. Choose **Actions > Call Contact > New Call**.
3. In the New Call dialog box, click Dialing Options.
4. In the Dialing Options dialog box, select the entry with the user's station ID from the **Connect using line** drop-down list. (To hear the station ID, pick up the user's phone and dial *0.)

For example, select the following entry to connect to the TeleVantage Server named MainServer from station ID 16:

Line 16:MainServer

5. Configure the TeleVantage Contact Manager Assistant as described below.

Configuring TeleVantage Contact Manager Assistant for the Multi-Line TAPI Service Provider

Perform the following configuration steps from the PC of each Contact Manager Assistant user who will use the Multi-line TSP (Outlook or GoldMine users only.)

1. From the Start menu, choose **Vertical TeleVantage > TeleVantage TAPI Service Provider Configuration Wizard**.
2. In the first dialog box, enter the name of the TeleVantage **Server** and the **Station ID** of the phone that will be used by the person at this PC. (To hear the station ID, pick up the user's phone and dial *0.)

Click **Next** to continue.

3. In the next dialog box, select the **User Name** of the person assigned to this station ID from the drop-down list, and then enter the user's **Password**.
4. Click **Finish**.

INSTALLING THE TELEVANTAGE RECORDING ARCHIVE SERVICE

CHAPTER CONTENTS

Introduction	15-2
Installation steps	15-2

Introduction

The TeleVantage Recording Archive Service is installed on the archive server—a different PC from the TeleVantage Server. The archive server PC must be on your LAN, and cannot be remotely connected via the Internet.

For a graphic showing the TeleVantage Recording Archive Service in a typical installation, see page 13-2.

For information on how to configure the Recording Archive Service, perform automatic and manual archives, and manage archive users, see Chapter 12 in *Administering TeleVantage*. For details on using the Archived Recording Browser to search for and act on mailbox recordings, see Appendix E in *Using TeleVantage*.

Installation steps

1. Identify a PC that meets the requirements for the archive server as described in “TeleVantage Recording Archive Service requirements” on page 3-21. The archive server PC must be a different PC than the TeleVantage Server.
2. Using Windows Explorer, create your archive folder, an empty directory, on a disk with a significant amount of available storage for your archived recordings. Note the following:
 - It is preferable but not necessary to create the archive folder on the archive server PC.
 - It is not recommended to create the archive folder on the TeleVantage Server PC.
 - The archive folder must be a network folder that is shared with full read/write permissions to all archive browser users.

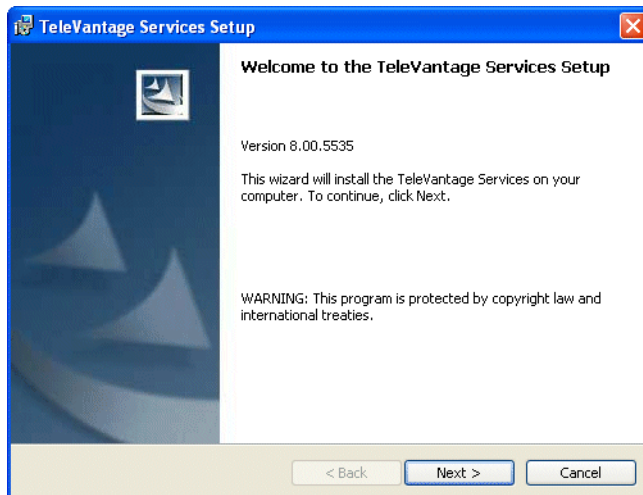
Note: If you are upgrading from TeleVantage 6.x, you can import your current recording archive, once you have completed the steps in this section. See “Importing a recording archive from TeleVantage 6.x” in Appendix E in *Using TeleVantage* for more information.

3. Install Microsoft MSDE or SQL Server on the archive server according to the steps in Chapter 9 in *Installing TeleVantage*.
4. Insert the Master CD. If the Master Setup does not start automatically, run **autorun.exe** from the root directory on the Master CD.

5. Click **TeleVantage Services**.

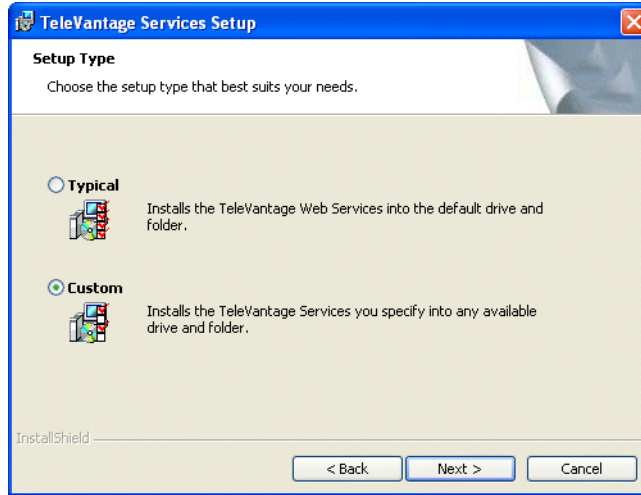


6. The TeleVantage Services Setup starts.

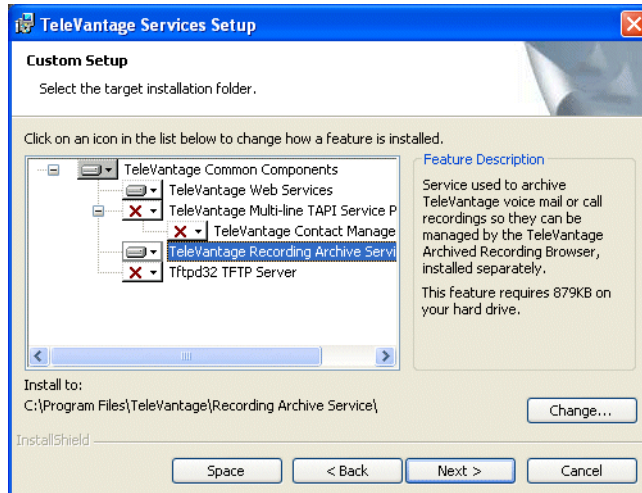


Follow the on-screen instructions.

7. In the Setup Type dialog box, select **Custom**, and then click **Next** to continue.



8. In the Custom Setup dialog box, select **TeleVantage Recording Archive Service**, and deselect the other features. (If you have already installed TeleVantage Web Services, that feature is detected and pre-selected—you do not need to deselect it.)



You can also do any of the following:

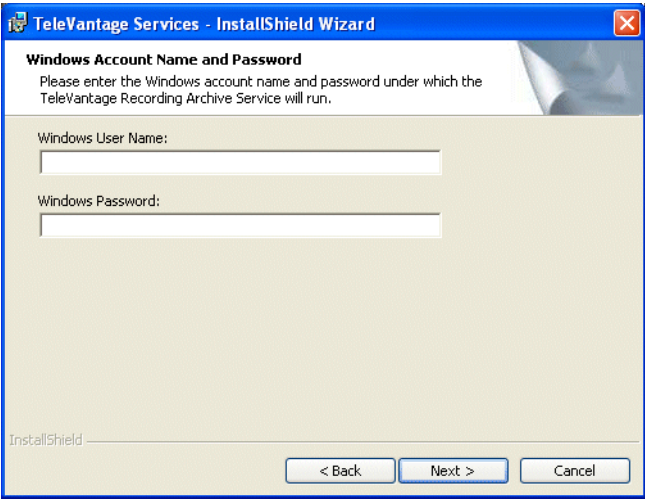
- Click a component to see a description of it as well as the amount of disk space required to install it.
- Click **Space** to check the available space on each hard drive on the PC.
- Click **Change** to change the destination drive or folder where the selected component will be installed. You can specify a different location for each component.

Click **Next** to continue.

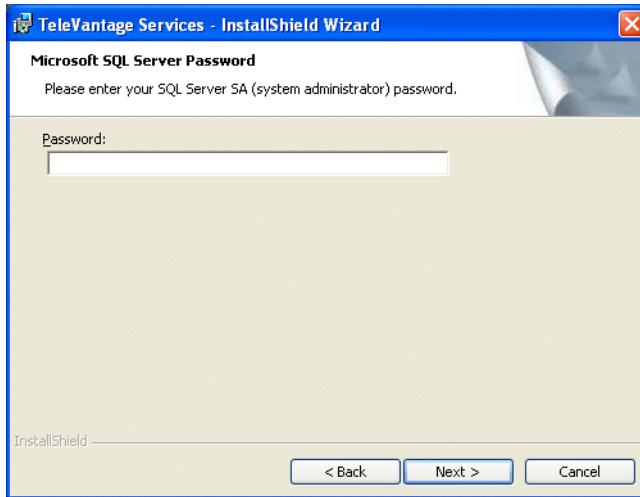
9. If you are installing the TeleVantage Recording Archive Service on the TeleVantage Server PC, Setup warns you that for performance and security reasons it is recommended, but not required, that you install the Recording Archive Service on a different PC.

Click **OK** to dismiss the warning and then click **Next** to continue with the installation, or click **Cancel** to exit Setup.

10. In the Windows Account Name and Password dialog box, enter the name and password of the account that you will use to run the TeleVantage Recording Archive Service.



11. In the Microsoft SQL Server Password dialog box, enter your SQL Server SA (system administrator) password.



12. In the Ready to Install dialog box, click **Install**. If you are prompted to restart your PC, do so.

INSTALLING THE TELEVANTAGE SMDR SERVICE

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Installing the SMDR service	16-3
Configuring the SMDR service	16-3
TCP/IP ports to avoid	16-5
TeleVantage SMDR formats	16-6
Toshiba CTX SMDR format	16-10
Avaya Lucent Definity SMDR format	16-12

Overview

The TeleVantage SMDR (Station Message Detail Recording) Service lets you send real-time call data from TeleVantage to a third-party application. Third-party applications might be anything from a printer that prints a line for each call, to call accounting software that generates detailed reports.

TeleVantage sends out the information for each call as soon as the call is ended. The information is sent as text in any of the following supported SMDR formats:

- **TeleVantage formats.** TeleVantage's own format that outputs all call information that appears in the Administrator's Call Log. This format provides the most complete TeleVantage SMDR call data. For details on the data stream sent, see "TeleVantage SMDR formats" on page 16-6
- **Toshiba CTX.** An emulation of the format for Toshiba's CTX100 and CTX670 switches, which are supported by many third-party products. For details on the data stream sent, see "Toshiba CTX SMDR format" on page 16-10.
- **Lucent/Avaya Definity.** An emulation of the SMDR format for Lucent's Definity switch, which is supported by many third-party products. For details on the data stream sent, see "Avaya Lucent Definity SMDR format" on page 16-12.

The SMDR Service is a Microsoft Windows Service that runs behind the scenes. It does not require that a user be logged into the PC.

You can configure settings for the SMDR Service using the TeleVantage SMDR Service Manager. See "Configuring the SMDR service" on page 16-3.

Output connection options

The TeleVantage SMDR Service can send call information from the TeleVantage Server on the following connection methods:

- **COM port.** This is the standard way in which PBXs send SMDR data. To use this method, plug one end of a serial cable into the appropriate COM port on the TeleVantage Server computer, and connect the other end to the COM port of the PC or device that requires SMDR data.
- **TCP/IP Socket.** The data stream is broadcast over the network from the IP address of the TeleVantage Server. Any computer on the network (or Internet) would be able to receive the data. By default the TeleVantage TCP/IP port 1000, but you can change this to any port. Certain TCP/IP ports are not recommended, like 23. For a list of ports to avoid, see "TCP/IP ports to avoid" on page 16-5.

Note: Only one device can listen to the TCP/IP port at a time.

- **Text File.** The data is written to text file anywhere on the network that gets constantly updated. You can have TeleVantage automatically back the file up at midnight. When using this method, the best format to use is TeleVantage CSV.

Installing the SMDR service

To use the SMDR service, install it on the TeleVantage Server PC. The SMDR service requires that TeleVantage ViewPoint also be installed on the same PC. For instructions on installing ViewPoint, see *Installing TeleVantage*.

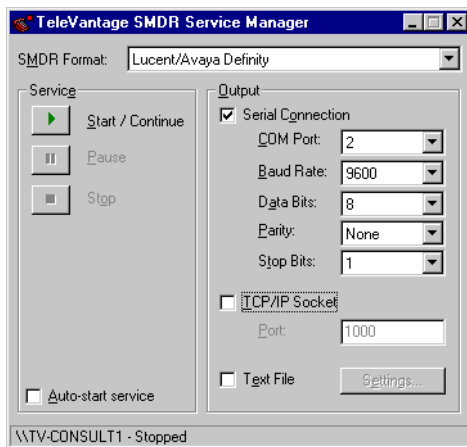
Note: You can install the SMDR service without shutting down the TeleVantage Server. However, it is recommended that you perform the installation during off-peak hours in case a Server restart is needed.

To install the SMDR service

1. On the TeleVantage Server PC, insert the Master CD and run the file `\SMDR\Setup.exe`.
2. Follow the instructions in the SMDR Service Setup window.

Configuring the SMDR service

To configure settings for the SMDR service, including the data format and connection type, run the TeleVantage SMDR Service Manager on the TeleVantage Server computer. To start it, choose **Start > Programs > Vertical TeleVantage Server > TeleVantage SMDR Manager**.



Important: To change configuration settings, you must either stop or pause the SMDR Service according to the instructions in the next section.

Starting, pausing, and stopping the service

Click the buttons in the **Service** section to **Start**, **Pause** and **Stop** the SMDR Service. You must either stop or pause the service to change configuration settings.

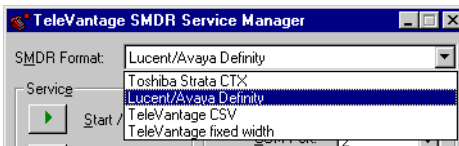
- **Stopping the service.** While the service is stopped, TeleVantage calls that complete are not reported.
- **Pausing the service.** While the service is paused, TeleVantage calls that complete are stored in a buffer. When you click **Continue**, they are reported.

Starting the SMDR service automatically on restart

Check Auto-start the service to have Microsoft Windows automatically start the service whenever the PC is started, regardless of whether anyone has logged in or not.

Choosing the SMDR format

To select the format for data sent by the SMDR Service, use the **SMDR Format** drop-down list. For a list of supported formats, see “Overview” on page 16-2.

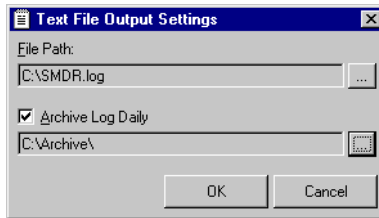


Selecting the output connection type



In the **Output** section, check whichever of the following methods you are using to connect the TeleVantage Server with your third-party SMDR application:

- **Serial connection.** Check to enable connection through a serial cable running from a COM port on the TeleVantage Server computer to an SMDR device.
 - **COM port.** Select which COM port on the TeleVantage Server computer to use. For information on selecting a COM port, see your Windows documentation.
- **TCP/IP Socket.** Check to enable broadcasting of SMDR data on your network or the Internet.
 - **Port.** Enter the number of the TCP/IP port on which to broadcast SMDR data. For a list of port numbers to avoid, see “TCP/IP ports to avoid” on page 16-5.

- **Text file.** Check to have the SMDR Service write call data to a text file in the location of your choice. Click **Settings** to set file location and archiving options in the Text File Output Settings dialog box.



You can set the following text file options:

- Click  to specify a new location or filename for the file.
- Check **Archive Log Daily** to have TeleVantage automatically begin writing to a new file every midnight, leaving the previous day's file as an archive. The filenames are numbered sequentially. Click  to specify the location for the archive files.

TCP/IP ports to avoid

When choosing a TCP/IP port on which to broadcast SMDR information using a TCP/IP Socket connection, avoid the following port numbers:

Port	Traditional use
TCP25	SMTP
TCP20,TCP21	FTP
TCP80	HTTP
TCP110	POP3
TCP119	NNTP
TCP389	LDAP

For more information, see the following website:

<http://www.ietf.org/rfc/rfc1700.txt?number=1700>

TeleVantage SMDR formats

The TeleVantage formats provide the most complete SMDR call data, offering all call information that appears in the Administrator's Call Log. There are two TeleVantage formats that provide exactly the same data stream, formatted in different ways:

- **TeleVantage fixed-width.** The data is formatted in fixed-width columns. Note that long data, for example in the Custom Data column, can be truncated when using this format.
- **TeleVantage CSV.** The data is formatted as comma-separated values.

The following table shows the data stream for both TeleVantage formats. The "Width in Characters" column applies only to the fixed-width format.

Position	Description	Width in characters
1	Direction. <ul style="list-style-type: none">■ 0 - Inbound■ 1 - Outbound■ 2 - Internal■ 3 - Conference	1
2	From Name. Name of the person who originated the call. On incoming calls, "Unknown" appears unless the caller has been identified as a global contact. On outgoing calls, the name of the user who placed the call.	15
3	To Name. Name of the party who received the call. On incoming calls, this is the name of the user who took the call. On outgoing calls, "Unknown" appears unless the person has been identified as a global contact.	15
4	Answered By. Name of the user who answered an incoming call. Useful for analyzing data for call centers.	15
5	Number. Phone number of the caller or the person you called. For incoming calls, the Caller ID information that came in with the call, if available. For a call to or from another TeleVantage user, this field contains <NA>.	30

Position	Description	Width in characters
6	From Number. Number the call came from. For incoming calls, the caller's extension or external phone number. For outgoing calls, the extension of the user who placed the call.	15
7	To Number. Number the call was placed to. For incoming calls, the extension of the user who was called. For outgoing calls, the external number or extension that was called.	15
8	Callback Number. If a caller enters a callback number, it appears with the prefix "Callback:"	15
9	DID. The DID of the incoming call.	10
10	Start Time. Date and time when the call started.	17
11	Wait Time. On incoming calls, the length of time from when the caller selected an extension to when the user picked up. On outgoing calls, Wait Time is always 00:00.	8
12	Duration. Length of the call, after the two parties are connected.	8
13	Result. How the caller's wait ended: <ul style="list-style-type: none"> ■ 1 - Connected (caller hung up first) ■ 2 - Connected (callee hung up first) ■ 3 - Abandoned ■ 4 - voicemail ■ 5 - Blind Transfer ■ 6 - Supervised Transfer ■ 7 - Merged ■ 8 - Logged In 	1

Position	Description	Width in characters
14	Account Code. The Account code for this call	10
15	Message. <ul style="list-style-type: none"> ■ 0 - no message ■ 1 - the caller left a voice message. 	1
16	From Device. On incoming calls, the trunk or extension from which the call originated. On outgoing calls, your station number.	11
17	To Device. On incoming calls, your station number. On outgoing calls, the trunk used for the call. If an incoming call was transferred, To Device shows the last station that took the call.	11
18	Parties. Number of people who took part in the call, including the caller, the called party, anyone to whom the call was transferred, and any conference call participants.	2
19	Dial String. Digits that TeleVantage actually dialed over the trunk, which may be different than the digits TeleVantage displays in a contact's phone number. For example, a dial string may contain an international or long-distance access code, least cost routing information, or a dialing prefix or suffix.	15
20	From Type. Type of Caller ID number received on an incoming call: <ul style="list-style-type: none"> ■ 0 - No number ■ 1 - Phone Number ■ 2 - IP Address ■ 6 - Extension 	1

Position	Description	Width in characters
21	From Code. Access code of the dialing service that will be used to return this call. Only applicable to calls coming in from remote TeleVantage Servers over an Internet trunk.	10
22	From Rules. <ul style="list-style-type: none"> ■ 0 - No rules ■ 1 - TeleVantages dialing rules will be applied when returning this call. 	1
23	To Type. Type of number called on an outbound call: <ul style="list-style-type: none"> ■ 0 - No number ■ 1 - Phone Number ■ 2 - IP Address ■ 6 - Extension 	1
24	To Code. Access code used to dial an outbound call.	10
25	To Rules. If checked, dialing rules were used to make an outbound call.	1
26	Custom Data. Custom data, if any, associated with the call. For most systems this will be blank.	30

Toshiba CTX SMDR format

This format is an emulation of the format used for Toshiba's CTX100 and CTX670 switch. This format sends a subset of the data that the TeleVantage format sends. It provides all the basic information that a Toshiba CTX SMDR recipient requires, but is not an exact duplicate of their format and may not represent details in the same way. This format provides a subset of the data that the TeleVantage format sends.

The following table shows the data stream for the Toshiba CTX SMDR format:

Position	Description
LINE 1 Basic Call Information	
1	Record Type <ul style="list-style-type: none">"B" - Abandoned"N" - Normal Inbound/Outbound Call
2	Blank
3-5	"001" - Record Number
6	Blank
7-12	Node ID (Ignored in our implementation)
13	Blank
14-22	Origin Information <ul style="list-style-type: none">Inbound: "T001" + Trunk # (000-999)Outbound: "DN" + Extension NumberInternal: "DN" + Extension Number
23	Blank
24-32	Termination Information <ul style="list-style-type: none">Inbound: "DN" + Extension NumberOutbound: "T001" + Trunk # (000-999)Internal: "DN" + Extension Number
33	Blank
34-47	Time Stamp (MM/DD HH:NN:SS)
48	Blank
49-58	Call Duration (HH:NN:SS + ".o")
59	Blank
59	Blank
60-91	Number Dialed

Position	Description
92	Carriage Return
93	Line Feed
LINE 2 CallerID and DID	
1	Blank
2	"&"
3-19	CallerID
20	Blank
21-39	Blank (Ignored in our implementation)
40-46	DNIS/DID
47-62	Blank (Ignored in our implementation)
63	Carriage Return
64	Line Feed
LINE 3 Account Code (optional, will not appear if no account code)	
1	Record Type <ul style="list-style-type: none"> • "B" - Abandoned • "N" - Normal Inbound/Outbound Call
2	Blank
3-5	"002" - Record Number
6-47	Mirror of Line 1
48-59	Blank
60-91	Account Code
92	Carriage Return
93	Line Feed

Avaya Lucent Definity SMDR format

This format is an emulation of the standard SMDR format for Lucent's Definity switch. It provides all the basic information that a Lucent Definity recipient requires, but is not an exact duplicate of their format and may not represent details in the same way. This format provides a subset of the data that the TeleVantage format sends.

The following table shows the data stream for the Avaya Lucent Definity SMDR format:

Position	Description
1-4	Time of day (HHMM)
5	Space
6	Duration - hours
7-8	Duration - minutes
9	Duration - tenths of minutes
10	Space
11	Condition Code
	"9" - Inbound
	"7" - Outbound
	"0" - Internal
12	Space
13-15	Dialing Service
16	Space
17-19	TAC Trunk Access
	Inbound: Blank
	Outbound: Trunk Number
20	Space
21-35	Digits Dialed
36	Space
37-41	Station Number
	Inbound: Trunk Number
	Outbound: Extension
42	Space
43-57	Account Code

Position	Description
58	Space
59-82	Ignored in TeleVantage implementation of this format
83	Carriage Return
84	Line Feed

INSTALLING THE TFTP SERVICE

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Overview

This chapter describes how to install the Tftpd32 TFTP Server included with TeleVantage.

If you are using any of the following phones with TeleVantage, you must install a TFTP (Trivial File Transfer Protocol) server on your network. Each of these phones uses the Tftpd32 TFTP Server to download updates to the phone's firmware and configuration files.

- Vertical Aastra SIP phones
- Polycom H.323 phones
- Uniden H.323 phones

For the specific models of these phones that are supported in TeleVantage, see “Tested SIP desktop phones” on page 5-6 and “Tested H.323 phones” on page 5-10.

Installing and configuring the Tftpd32 TFTP Server

You can install the Tftpd32 TFTP Server on the TeleVantage Server or on another PC.

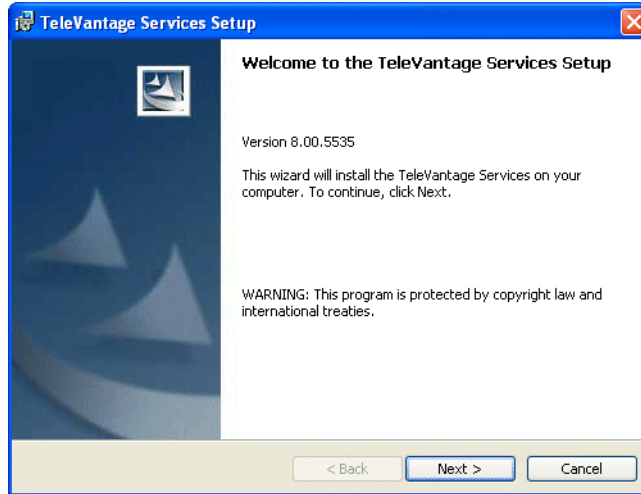
Note: The Windows account used by the TeleVantage Server and any account that will run the Administrator must have full read/write access to the directory where you install the Tftpd32 TFTP Server.

To install and configure the Tftpd32 TFTP Server

1. Insert the Master CD. If the Master Setup does not start automatically, run **autorun.exe** from the root directory on the Master CD.
2. Click **TeleVantage Services**.

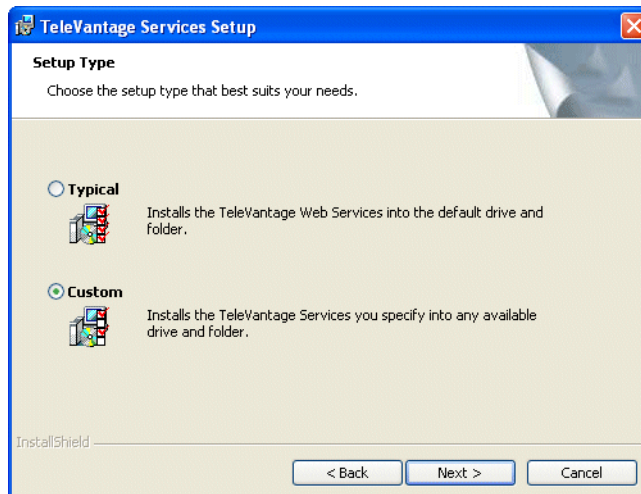


3. The TeleVantage Services Setup starts.

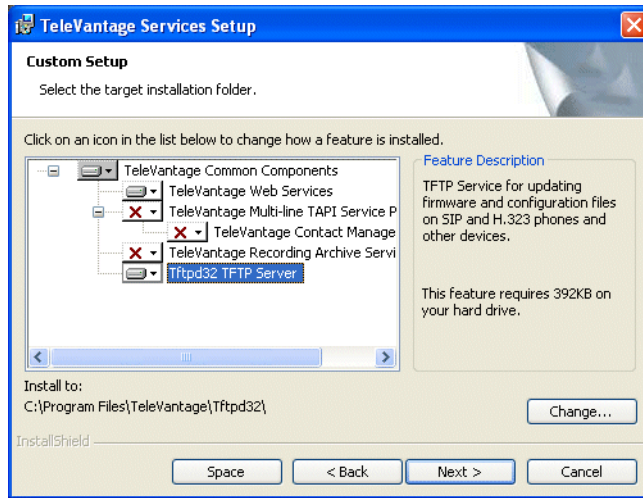


Follow the on-screen instructions.

4. In the Setup Type dialog box, select **Custom**, and then click **Next** to continue.



5. In the Custom Setup dialog box, select **Tftpd32 TFTP Server**, and deselect the other features. (If you have already installed TeleVantage Web Services, that feature is detected and pre-selected—you do not need to deselect it.)



You can also do any of the following:

- Click a component to see a description of it as well as the amount of disk space required to install it.
- Click **Space** to check the available space on each hard drive on the PC.
- Click **Change** to change the destination drive or folder where the selected component will be installed. You can specify a different location for each component.

Note: By default, the installation location that you specify here is also used as the root directory for the Tftpd32 TFTP Server phone configuration files. You can change the root directory at a later time according to the instructions in “Configuring the Tftpd32 TFTP Server once it has been started” on page 17-6.

Click **Next** to continue.

6. In the Ready to Install dialog box, click **Install**. If you are prompted to restart your PC, do so.
7. When the installation completes, you can configure the Tftpd32 TFTP Server if needed. While this is not necessary in most configurations, to do so click **Start > Programs > Vertical TeleVantage > Tftpd32 TFTP Server**.

8. Once configured properly, start the Tftpd32 TFTP Server using the Windows Services control panel, and set the Tftpd32 TFTP Server service to auto-start. To do so, click **Start > Settings > Control Panel > Administrative Tools > Services**.
9. In the Services dialog box, locate and double-click **Tftpd32 TFTP Server**.
10. On the General tab of the Properties dialog box, select **Automatic** from the **Startup type** drop-down list. Click **Start** to start the Tftpd32 TFTP Server without rebooting.
11. Click **OK**, and then exit the Services dialog box.
12. Depending on the phones you are using, copy the entire contents of one of the following folders on the Master CD to the same folder where you installed the Tftpd32 TFTP Server (the default location is **C:\Program Files\TeleVantage\Tftpd32**).
 - \IPPhones\SIP\Aastra
 - \IPPhones\SIP\Aastra\1.2.5 Build 316 (Copy the contents of this folder if you are using *any* Vertical Aastra 480i CT IP Phones with cordless handset and base station.)
 - \IPPhones\H323\Polycom
 - \IPPhones\H323\Uniden

Note: Additional required configuration steps for these phones are described in Chapters 14 and 15 in *Administering TeleVantage*.
13. **Important:** In Windows Explorer, share the directory where you installed the Tftpd32 TFTP Server to the account used by the TeleVantage Server and to all users who will need to run the TeleVantage Administrator. When you set up the share, use the share name TFTP, so that once shared, you can refer to it as a UNC path, for example **\\TeleVantage\TFTP**.

Configuring the Tftpd32 TFTP Server once it has been started

Detailed information on configuring the Tftpd32 TFTP Server is available at the following location:

<http://tftpd32.jounin.net/>

To make any changes to the Tftpd32 TFTP Server configuration settings, you must first stop the service. To do so:

1. Click **Start > Settings > Control Panel > Administrative Tools > Services**.
2. In the Services dialog box, locate **Tftpd32 TFTP Server**. Right-click on it and then click **Stop**.
3. Click **Start > Programs > Vertical TeleVantage > Tftpd32 TFTP Server**.
4. Click **Settings**.
5. Make any necessary changes. For more information on configuring the Tftpd32 TFTP Server, click **Help**.
6. When you are done making changes, close the Settings dialog box.
7. Right-click on **Tftpd32 TFTP Server** in the Services dialog box again, and then click **Start**.

Appendixes

USING TELEVANTAGE WITH MICROSOFT TERMINAL SERVICES OR CITRIX METAFRAME

Using Microsoft Terminal Services or Citrix® MetaFrame with TeleVantage enables you to do the following:

- Manage a TeleVantage Server remotely.
- Run the TeleVantage Administrator or ViewPoint on a PC that does not meet the minimum requirements described in “Administrator and ViewPoint requirements” on page 3-18.
- Centrally manage the installation and maintenance of the TeleVantage Administrator and ViewPoint workstation applications by installing them on an application server, instead of on individual users’ PCs.
- Run the Dialogic Configuration Manager (DCM) remotely to perform many of the configuration tasks described in Chapter 7 in *Installing Dialogic Telephony Components*. See Appendix D in *Installing Dialogic Telephony Components* for information on how to configure DCM to run under Terminal Services.
- Run TeleVantage Multi-line TAPI Service Provider (TSP) to provide multiple lines for TAPI support.

Microsoft Terminal Services or Citrix MetaFrame can be used in one of two modes, Application Server or Remote Administration. Both of these modes can be used with TeleVantage, as follows:

- **Application Server.** In Application Server mode, remote PCs can be used as terminals for programs running in a multisession environment on an application server. For example, several users on remote PCs can start terminal sessions to run TeleVantage ViewPoint. Each session starts a new instance of ViewPoint, and all instances of ViewPoint run simultaneously on the application server. No TeleVantage software is required on the remote PCs.

Both the TeleVantage Administrator and TeleVantage ViewPoint are compatible with the multisession environment provided by Microsoft Terminal Services and Citrix MetaFrame. See “Installing workstation applications on an application server” on page A-2 for details on how to set up an application server for use with TeleVantage.

Note: To use TAPI and the Contact Manager Assistant on Microsoft Terminal Services or Citrix MetaFrame, you must install the TeleVantage Multi-line TAPI Service Provider, using the TeleVantage Services Setup program. You cannot use the single-line TAPI Service Provider included with the TeleVantage Workstation Installer with Terminal Services or Citrix Metaframe. For details, see Chapter 14.

- **Remote Administration.** In Remote Administration mode, you can use a remote PC to access a TeleVantage Server over the network just as if you were sitting at the Server console. Remote Administration can be used to perform upgrade and maintenance tasks remotely. For details, see “Using Terminal Services for remote administration” on page A-5.

Installing workstation applications on an application server _____

Bear the following considerations in mind when you set up an application server for TeleVantage:

- The application server should not be the same PC as your TeleVantage Server PC.
- Applications should not be installed in the same partition as the Windows operating system. In most cases, Windows will be installed on your C drive and applications will be installed on a D drive. The D drive can either be a separate hard disk or another partition on the same disk as the C drive.
- Always use Add/Remove Programs (located on the Windows Control Panel) to install programs. This ensures that the programs are set up properly for multisession use.

Note: The server must be in remote administration mode to remotely install any TeleVantage workstation applications. See “Using Terminal Services for remote administration” on page A-5.

Installing workstation applications on a Windows 2003 server

To install the TeleVantage workstation applications on a Microsoft Windows 2003 Terminal Server, see the documentation that came with Terminal Services.

Installing workstation applications on a Windows 2000 server

To install the TeleVantage workstation applications on a Microsoft Windows 2000 Terminal Server, do the following:

1. On the Terminal Server PC, open the Windows Control Panel and click **Add/Remove Programs**.
2. In the Install/Uninstall tab, click **Install**.
3. In the Install Program dialog box, click **Next**, and then click **Browse**.
4. In the Browse dialog box, go to the TeleVantage installation directory. The default location is:

\\<TeleVantage Servername>\Netsetup

5. Select either **admin.exe** or **client.exe**, depending on the workstation application that you want to install.
6. Click **Finish**, and then proceed with the installation. Add/Remove Programs will make sure that the application is set up for multisession use.
7. If you want to install more than one application, close Add/Remove Programs and restart it for each new application that you want to add.

Installing workstation applications on a Windows NT server

To install the TeleVantage workstation applications on a Microsoft Windows NT Terminal Server, do the following.

Note: This procedure can also be used with Citrix MetaFrame.

1. On the Terminal Server PC, open a command prompt window and type `change user /install`.
2. Stop all ODBC-dependent services including, but not limited to, IIS, SQL Server, SQL Server Enterprise Manager, Terminal Server licensing service, and the ODBC Administrator.
3. Install MDAC 2.7 Service Pack 1A by running the following file. **<Servername>** is your TeleVantage Server PC:

<Servername>\NetSetup\Mdac\Mdac_typ.exe

Follow the on-screen instructions to install MDAC with the “Complete” option.

4. With this installation window still open, run the application compatibility script by running the following file:

C:\Application Compatibility Scripts\Install\Odbc.cmd

5. Find the following file:

C:\Application Compatibility Scripts\rootdrv2.cmd

If that file is not present, repeat step 4, and it should appear.

When you have located the file, edit it in Notepad and add the following line to the end of the file. You can set **RootDrive** to **W:** or any unused drive letter.

Set RootDrive=W:

Save and close the file when you are done.

6. Run the following file again:

C:\Application Compatibility Scripts\Install\Odbc.cmd

7. Return to the final window of the MDAC 2.7 SP 1A installation. Click **Restart Windows**.

8. If you see the following error message after restarting your PC, click **OK**, and then restart your PC again.



9. At the Terminal Server command prompt, type `change user /install`.
10. Install any of the TeleVantage workstation applications, such as TeleVantage ViewPoint, from the TeleVantage Server NetSetup directory. For detailed instructions, see Chapter 11.
11. At a command prompt, type `change user /execute`.

Using the Terminal Services Client on Windows 2000 PCs _____

You must install the Windows Terminal Services Client on the PC of any user who needs to run the TeleVantage Administrator or ViewPoint remotely. Remote PCs use the Terminal Services Client to run sessions in on the application server.

In Windows 2000, you have a choice between two different versions of the Terminal Services Client:

- **Terminal Services Client.** The standard Terminal Services Client is provided with Terminal Server. To install it, you must first create a set of installation disks with Terminal Server Client Creator that you then use on each remote PC. You can use this option if you do not want to install Microsoft Internet Explorer on remote PCs.
- **Terminal Services Advanced Client (TSAC).** The Terminal Services Advanced Client (TSAC) is an ActiveX control that can be used to run Terminal Services sessions within Microsoft Internet Explorer. It provides almost the same functionality as the full Terminal Services Client, but is designed to deliver this functionality over the Web. TSAC is somewhat easier to install because you do not have to create and use a set of floppy disks.

Using Terminal Services for remote administration

In Remote Administration mode, you can use a remote PC to access a server over the network just as if you were sitting at the server console. Remote Administration can be used to perform upgrade and maintenance tasks remotely.

When you start a session, your remote terminal may not be aware of applications that are already running on the server and will not display them on the console or in the task manager. This does not apply to all applications. For example, neither TeleVantage ViewPoint nor the Administrator would be visible, but the TeleVantage Device Monitor would be visible in the system tray. Before attempting to upgrade an application, you should restart the server to make sure the application is no longer running.

See page Appendix D in *Installing Dialogic Telephony Components* for instructions on how to set up and run the Dialogic Configuration Manager (DCM) remotely using Microsoft Terminal Services.

TROUBLESHOOTING

This appendix contains information that may be helpful when you are troubleshooting problems with various TeleVantage components. It is divided into the following sections:

- “TeleVantage system overview” on page B-2
- “Troubleshooting telephone problems” on page B-3
- “Troubleshooting database server problems” on page B-4
- “Troubleshooting TeleVantage Server problems” on page B-5
- “Troubleshooting workstation application problems” on page B-7
- “Troubleshooting TeleVantage Services problems” on page B-13
- “Other troubleshooting topics” on page B-16

For information on troubleshooting VoIP problems with SIP or H.323, see Appendix H.

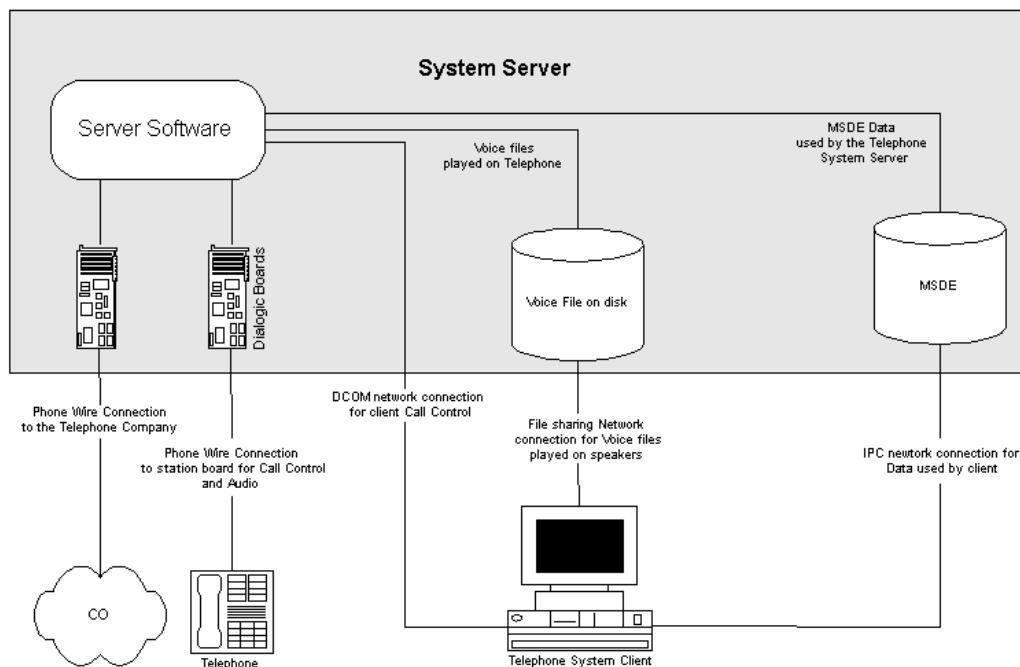
For information on troubleshooting problems with Dialogic HMP or Dialogic telephony hardware and drivers, see Appendix C in *Installing Dialogic Telephony Components*.

Reporting problems

For information about how to report problems, see *Administering TeleVantage*.

TeleVantage system overview

The following figure shows the logical structure of a TeleVantage Server. Understanding this information will be helpful when you are trying determine the significance of system behavior when you are troubleshooting problems.



The TeleVantage Server connects to a user by means of two different physical sets of wiring:

- Phone wire connects the station telephone to the Server (by means of the station board.)
- The network connects TeleVantage ViewPoint to the Server.

When troubleshooting networking problems, keep in mind that TeleVantage uses three kinds of communication between the TeleVantage Server and TeleVantage ViewPoint or TeleVantage Administrator.

As shown in the previous figure, the network connection between the Server and TeleVantage ViewPoint actually consists of three different logical connections:

- The Server software and the ViewPoint software communicate using DCOM.
- ViewPoint accesses voice files stored on the Server through file sharing.
- The MSDE Client software, which is embedded in ViewPoint, communicates with the MSDE database on the Server using its own IPC protocol.

Understanding these different data paths can be important in understanding and troubleshooting the TeleVantage system. For example, the previous diagram shows that if a user can listen to voice mail messages using the telephone commands, but cannot do so using ViewPoint, problems with file sharing or accessing the MSDE database may be the cause. To solve the problem, you would use Windows Explorer to check the file sharing privileges on the Server machine.

Troubleshooting telephone problems

This section provides information about the following problems:

- Calls are rejected. See page B-3.
- Faint music heard on calls. See page B-3.
- All incoming calls hear a busy signal but the phones are not busy. See page B-3.
- Hang up not being detected. See page B-4.
- Gateway calls between TeleVantage Servers fail. See page B-4.
- Toshiba Strata DKT-series digital phones do not appear in the Device Monitor. See page B-4.

Calls are rejected

Possible causes for the error message, “I’m sorry, the other party rejected the call” include the following:

- The call is placed on an Internet telephony trunk, and the receiving party does not have an IP phone.
- None of the trunks at the receiving end are configured to accept incoming calls.
- An outbound call is placed on an ISDN line, but the switch sends TeleVantage a disconnect message before the call is connected to the intended recipient.

Faint music heard on calls

This problem is probably due to radio interference. Installing a Radio Shack RF Filter (Part Number 43-150) on the user end between the jack and the phone should correct the problem.

All incoming calls hear a busy signal but the phones are not busy

Use the Services icon on the Windows Control Panel to ensure the Dialogic service is running. When Dialogic boards are powered up and no drivers are present, the reaction to incoming calls is controlled by the setting of the hook-state switch (SW1) on the boards. This switch may be set to generate a busy signal.

Hang up not being detected

Not all telephone company lines indicate a disconnect in the same way. Most will drop loop current (which is fairly easy to detect) but some may do other things, including:

- Go silent
- Play a dial tone
- Play a reorder tone
- Play some other kind of tone

To determine the disconnect tones, see *Administering TeleVantage*.

Gateway calls between TeleVantage Servers fail

TeleVantage 3.x Servers cannot communicate with a TeleVantage 8.0 Server over an IP Gateway connection. Upgrade the TeleVantage 3.x Servers to TeleVantage 8.0.

Toshiba Strata DKT-series digital phones do not appear in the Device Monitor

After installing a Toshiba Strata CS-DKTU digital station board on the TeleVantage Server and connecting Toshiba Strata DKT phones to the board, the phones do not appear in the Device Monitor.

This problem occurs because Toshiba Strata CS-DKTU digital station boards do not work in an Advanced Configuration and Power Interface (ACPI) hardware environment. To correct the problem, you must change the hardware profile that your TeleVantage Server PC is using. For details, see the TeleVantage Knowledge Base article #1541, "Toshiba Strata DKT digital phones do not appear in the Device Monitor."

Troubleshooting database server problems _____

This section provides information about the following problems:

- Cannot access the TeleVantage database server. See page B-4.
- Valid sa password not accepted when installing MSDE 2000 from Master CD. See page B-5.

Cannot access the TeleVantage database server

If you cannot connect to or load the database server, verify the following:

- The system was restarted after Microsoft MSDE was installed and the MSDE service is running.
- The correct MSDE password was entered during installation. (The password is entered if you followed the installation instructions.) Contact your TeleVantage provider for assistance.

Valid sa password not accepted when installing MSDE 2000 from Master CD

If you installed your existing version of MSDE or SQL Server as a stand-alone (non-networked) version, the network libraries were not installed, and all sa passwords (even a valid one) will be rejected. To resolve the problem, do the following:

1. Run the Microsoft Data Access Components (MDAC) installer (**mdac_typ.exe**) from either of the following locations:
 - \\Program Files\\TeleVantage Server\\netsetup\\mdac** directory on the TeleVantage Server PC
 - \\server\\netsetup\\mdac** directory on the Master CD
2. Rerun the TeleVantage Master Setup, and try to install **Microsoft Data Engine** again.

Troubleshooting TeleVantage Server problems _____

This section provides general tips for troubleshooting TeleVantage Server problems, as well as information about the following problems:

- Cannot connect to the TeleVantage database during TeleVantage Server installation or when starting the Server or Administrator. See page B-6.
- TeleVantage Server does not appear in Windows Services list. See page B-6.
- Slow Server and station startup after migrating TeleVantage to a new Server with a new name. See page B-6.
- TeleVantage Server start up problems. See page B-7.
- Device Monitor problems. See page B-7.

General tips for troubleshooting TeleVantage Server problems

If you encounter problems after successfully installing the TeleVantage Server, check the following:

- Is there sufficient free disk space on the drive containing the **vfiles** directory?
- Is there sufficient free database space? (Choose **Tools > System Settings** and click the Storage tab to check.)
- What is the accessibility of database, voice files, and shares on the network?
- Can the server be pinged? (Try entering C:\\ping <Servername> from a DOS prompt.)

TeleVantage Server does not appear in Windows Services list

If the TeleVantage Server does not appear in the Services list (**Start > Settings > Control Panel > Administrative Tools > Services**), open a command prompt on the Server, and enter the following commands:

```
CD \Program Files\TeleVantage Server  
tvserver.exe /service
```

Cannot connect to the TeleVantage database during TeleVantage Server installation or when starting the Server or Administrator

This problem can occur if the connection from Microsoft MSDE/SQL Server to the database file has been removed. This can happen if you uninstalled and reinstalled MSDE/SQL Server for any reason.

Important: The following steps should not be used for routine maintenance or to restore a version of the TeleVantage database once TeleVantage is installed and running successfully. In those cases, you should always use the TeleVantage Administrator to restore the TeleVantage database according to the instructions in Chapter 12 of *Administering TeleVantage*.

To restore a connection to the TeleVantage database

1. On the same PC where the database server is installed, run the following utility from the Master CD:
Support\TVDBRestore\TVDBRestore.exe
2. Enter the **Database administrator password** (the SQL sa password).
3. Browse to the location of the TeleVantage **Database backup file**, for example **\Program Files\TeleVantage Server\Data\tvdbdev_5.dat**.
4. Click **OK**.

If the problem occurred during Server installation, begin the Server installation over again according to the instructions in “Installing the TeleVantage Server” on page 10-2.

Slow Server and station startup after migrating TeleVantage to a new Server with a new name

This problem is caused by importing a database from another machine with a different machine name.

To prevent this problem, when migrating to a new machine and new TeleVantage version, do the following:

1. Move your existing version of TeleVantage to a new machine and verify that it works.
2. Back up the database on the existing Server.
3. Copy **TVDB.Dmp** and **TVServer.Reg** to the backup directory on the new Server (**C:\Program Files\TeleVantage Server\Data\Backup.**)
4. Copy the voice (VOX) files to the new Server.

5. Restore the TeleVantage database.
6. Upgrade to the new version of TeleVantage and verify that it works.

TeleVantage Server start up problems

- **TeleVantage Server is unknown.** Run the utility **TVAccUtil.exe** as described in Appendix C.
- **TeleVantage Service will not start.** Verify that the account (valid license) from which the user is trying to start the TeleVantage Server has administrator privileges.
- **TeleVantage Server does not start because account password changed.** When you installed the TeleVantage Server, you entered the Windows account name and password used to run the TeleVantage Server. If the password for this account changes, the TeleVantage Server will not start.

To resolve this problem, use the DCOM config utility to update the account password in the Identify settings for TeleVantage Starter application.

- **Cannot connect to the TeleVantage database.** See “Cannot connect to the TeleVantage database during TeleVantage Server installation or when starting the Server or Administrator” on page B-6.
- **‘Unable to find libdxxmt.dll’ error when starting Server.** This error indicates that the Dialogic drivers are not properly installed and started. Reinstall the drivers according to the instructions.

Device Monitor problems

- **Device Monitor does not appear when the Device Monitor menu item is selected.** Click the Device Monitor icon in the system tray (lower right area of the task bar). By default, the Device Monitor starts minimized.
- **A trunk or station displays ‘Error!’ in Device Monitor.** The trunk or station is experiencing an error from which it cannot automatically recover. Use the Device Monitor Restart command to reinitialize the device.
- **Toshiba DKT-series digital phones do not appear in the Device Monitor.** See page B-4.

Troubleshooting workstation application problems _____

This section provides information about the following:

- ViewPoint/Administrator installation tips. See page B-8.
- ‘Corrupt installation’ dialog box. See page B-9.
- ‘TeleVantage workstation applications -- Installation operation failed’ error when installing TeleVantage workstation applications. See page B-9.
- TeleVantage ViewPoint and Administrator fail to install on Windows 98 SE if DCOM 98 is not previously installed. See page B-9.

- 'Server not available' dialog box appears when upgrading TeleVantage ViewPoint or Administrator. See page B-10.
- 'Error 7595' when starting TeleVantage ViewPoint. See page B-10.
- 'Error 3706 (Provider cannot be found. It may not be properly installed.) has occurred' when starting TeleVantage ViewPoint. See page B-10.
- Cannot start Administrator to back up the TeleVantage database. See page B-10.
- Cannot connect to the TeleVantage database when launching the Administrator. See page B-11.
- E-mail notification through Microsoft Outlook does not work if Outlook is installed in Internet Only mode. See page B-11.
- TeleVantage cannot connect to an SMTP mail server to send e-mail notifications. See page B-11.
- E-mail notification WAV file attachments are incorrectly sent as .DAT files. See page B-11.
- Workstation applications regularly lose connection to the TeleVantage Server. See page B-12.
- On a Windows XP Home SP2 PC, ViewPoint fails to connect to the TeleVantage Server. See page B-13.

ViewPoint/Administrator installation tips

- 'Class Automation' errors 430 or 1720 can occur if the latest version of Windows Scripting Runtime is not installed. Install Windows Scripting Runtime, then try installing ViewPoint again by running **Client.exe** from the Server's **\\NetSetup** directory. You can download Windows Scripting Runtime from the following location:

<http://msdn.microsoft.com/downloads/default.asp?URL=/downloads/sample.asp?url=/msdn-files/027/001/733/msdncompositedoc.xml>
- Error 1904 may occur when installing ViewPoint on Windows NT, ending the installation. If this happens, reboot the system and run the ViewPoint installation again.
- If you run the ViewPoint installation while Microsoft Outlook is running, you may see an error message that says, 'Microsoft Outlook cannot run the add-in. This feature is currently not installed. Would you like to install it now?' If you see this message, do the following:
 - Click **No**.
 - Another dialog box then appears with the message, 'Add-in fldpub.dll could not be installed or loaded. Problem may be resolved by using Detect and Repair on the Help menu.'
 - Click **OK**.
 - Manually restart your system by choosing **Start > Shut Down**.

When your system restarts, ViewPoint installation will continue.

‘Corrupt installation’ dialog box

This error means you are unable to install TeleVantage workstation applications. You must log on as a user with administrator privileges to the PC on which the workstation applications will be installed. If you do not, a “Corrupt Installation” dialog box may open.

‘TeleVantage workstation applications -- Installation operation failed’ error when installing TeleVantage workstation applications

If this error occurs while installing TeleVantage workstation applications, the TeleVantage Workstation Setup exits without installing the applications.

This error results if an older version of Windows Script is installed on the target PC, or the current version was not installed correctly. The minimum version required is Windows Script 5.6.

To obtain the latest version of Windows Script

1. Go to the Microsoft Download Center at the following location:
<http://www.microsoft.com/downloads>
2. Search for ‘Windows Script’. Locate the download for the latest version of Windows Script for your operating system.
3. Download and install Windows Script on the affected PC.
4. Restart the PC.
5. Run the TeleVantage Workstation Setup and install the workstation applications again.

TeleVantage ViewPoint and Administrator fail to install on Windows 98 SE if DCOM 98 is not previously installed

To safely install TeleVantage ViewPoint or the Administrator on a Windows 98 SE PC that does not have a previous version of TeleVantage installed, you must install DCOM 98 first as described in “Windows 98 PC requirements” on page 11-3.

Note: If you first run the Workstation Setup and attempt to install ViewPoint or Administrator workstation application on a Windows 98 SE PC without a previous version of TeleVantage installed or DCOM 98 installed, you will receive an MDAC installation error. If this happens, perform the following steps:

1. Close all open applications on the affected PC.
2. Run the Microsoft Data Access Components (MDAC) installer (**mdac_typ.exe**) from either of the following locations:
\\Program Files\\TeleVantage Server\\netsetup\\mdac directory on the TeleVantage Server PC
\\server\\netsetup\\mdac directory on the Master CD
3. Restart the affected PC.

4. Obtain the file **installedmdac.reg** from the **\support** directory on the Master CD, and then run it on the affected PC.
5. Install the ViewPoint or Administrator workstation application again and restart the PC.

'Server not available' dialog box appears when upgrading TeleVantage ViewPoint or Administrator

If the TeleVantage Server has been started, close the "Server not available" dialog box and continue with the installation.

'Error 7595' when starting TeleVantage ViewPoint

This error occurs if you upgraded your TeleVantage database server from SQL 7 to SQL 2000. To resolve the problem, perform the steps in "If you upgraded from SQL Server 7 to SQL Server 2000" on page 9-5 to set the database compatibility level correctly.

'Error 3706 (Provider cannot be found. It may not be properly installed.) has occurred' when starting TeleVantage ViewPoint

This error can occur on some PCs when starting ViewPoint. To fix the problem:

1. Using a program such as WinZip (<http://www.winzip.com>), open the file **mdac_typ.exe** from either of the following locations:
 - \Program Files\TeleVantage Server\netsetup\mdac** directory on the TeleVantage Server PC
 - \server\netsetup\mdac** directory on the Master CD
2. Using WinZip, double-click the file **sqloldb.cab** to view its contents in a new window.
3. In that new window, extract all the files in **sqloldb.cab** into **C:\Program Files\Common Files\System\Ole DB**.
4. At a command prompt, enter the following:
`regsvr32 "C:\Program Files\Common Files\System\Ole DB\sqloledb.dll"`
5. Start TeleVantage ViewPoint again.

Cannot start Administrator to back up the TeleVantage database

If you are unable to start the Administrator, you can still back up the TeleVantage database by running the Administrator from the command line.

From **Start > Run**, enter the path of the application in quotes, and then enter the **/backup** command as follows:

```
"\\<system name>\C\Program Files\TeleVantage Administrator\TVAdmin.exe"  
/backup
```


Cannot connect to the TeleVantage database when launching the Administrator

See “Cannot connect to the TeleVantage database during TeleVantage Server installation or when starting the Server or Administrator” on page B-6.

E-mail notification through Microsoft Outlook does not work if Outlook is installed in Internet Only mode

E-mail notification through Microsoft Outlook will not work if Outlook is installed in Internet Only mode. Outlook must be installed with full MAPI support to be used with the TeleVantage Server. To change modes, go to Microsoft Outlook and select **Tools > Options > Mail Services > Reconfigure Mail Support**.

TeleVantage cannot connect to an SMTP mail server to send e-mail notifications

E-mail notifications of voice messages may not be sent if TeleVantage cannot connect to your SMTP mail server. If this occurs, edit the following TeleVantage Advanced Settings to change the retry parameters.

- **Artisoft\Server\SMTPRetryInterval.** Specifies how long TeleVantage waits (in seconds) before retrying after failing to connect to an SMTP mail server to send an e-mail notification. The default is **30** seconds.
- **Artisoft\Server\SMTPMaxRetries.** Specifies how many retry attempts TeleVantage makes to send an e-mail notification via an SMTP mail server before logging the failure to the Windows Event Log. The default is **5** attempt. (A setting of **0** means that no retry is attempted.)

For instructions on using the TeleVantage Advanced Settings Editor, see page J-34.

E-mail notification WAV file attachments are incorrectly sent as .DAT files

When TeleVantage attaches a voice message to an e-mail notification, the voice message is normally sent as a WAV audio file. However, if the Microsoft Outlook outgoing mail format is not configured as Plain Text format on the TeleVantage Server PC, the attachment is sent as a .DAT file instead.

To use Plain Text format for voice messages attached to e-mail notifications, do either of the following:

To set the outgoing mail format in Microsoft Outlook:

1. Open Outlook on the TeleVantage Server PC.
2. Choose **Tools >Options**.
3. Click the Mail Format tab.

4. Under 'Message Format,' select **Plain Text**.
5. Click **OK**.

To set the outgoing mail format in the Windows registry on the TeleVantage Server:

1. Run Regedit.
2. Edit the following registry key and set it to the DWORD value indicated:

HKEY_LOCAL_MACHINE\SOFTWARE\Artisoft\TeleVantage\Server\Settings\InternetMailFormat=3

The settings to try for this registry key are the following. Try **3** first, and if the problem still occurs, try **1** or **2**.

1 = MIME (Multipurpose Internet Mail Extensions)

2 = UUEncode (Unix-to-Unix Encoding, an example of MIME)

3 = BinHex (another example of MIME)

For more information, see the Microsoft Knowledge Base article #278321, 'HOWTO: Force a Particular Internet Encoding by Using MAPI', available at the following location:

<http://support.microsoft.com/default.aspx?scid=kb;EN-US;q278321>

Workstation applications regularly lose connection to the TeleVantage Server

The DCOM connection used by the workstation application to connect to the TeleVantage Server will time out if there is an invalid DNS suffix on the affected PC. If the problem occurs, remove the invalid DNS suffix according to the following instructions.

1. On the affected PC, click **Start > Settings > Network and Dial-up Connections > Local Area Connections**.
2. In the Local Area Connection Status dialog box, click **Properties**.
3. In the Local Area Connection Properties dialog box, click **Internet Protocol (TCP/IP)**, and then click **Properties**.
4. In the Internet Protocol (TCP/IP) Properties dialog box, click **Advanced**.
5. In the Advanced TCP/IP Properties dialog box, click the DNS tab.

6. Verify any DNS suffixes listed in the middle of the dialog box by pinging each from a command line. To do so:
 - Click **Start > Run**.
 - In the Run dialog box, type **cmd**, and then click **OK**.
 - From the command line, type `ping <HostName>`, (for example, `ping Vertical.com`), and then press Enter.

If the suffix is invalid, you will get the message, “Unknown host <HostName>”.
7. To delete an invalid DNS suffix, select it in the Advanced TCP/IP Properties dialog box, and then click **Remove**.

On a Windows XP Home SP2 PC, ViewPoint fails to connect to the TeleVantage Server

When you start ViewPoint, the message “Could not connect to TeleVantage” is displayed.

This problem occurs because Windows XP Home cannot connect to a network domain by design. To fix the problem:

1. From the workstation PC, browse to the TeleVantage Server PC on the network.
2. When you are prompted to log in to the domain, do so using a valid Windows user name and password.
3. Try to start ViewPoint again. You should now be able to connect to the TeleVantage Server.

Troubleshooting TeleVantage Services problems _____

This section provides information about the following:

- Web Services installer seems to complete without requiring a reboot, but a reboot is required to finish. See page B-14.
- Messages “The page cannot be displayed” while running ViewPoint Web Access. See page B-14.
- Web Services \Audio folder contains many files. See page B-14.
- Applications that use the TeleVantage Multi-line TAPI Service Provider do not work after stations are reordered or added on the TeleVantage Server. See page B-15.
- Message “TeleVantage Recording Archive Service has not been configured to archive this server” when starting the Administrator on the TeleVantage Server. See page B-15.

Web Services installer seems to complete without requiring a reboot, but a reboot is required to finish

If the Web Services installer completes without requiring a restart, it is recommended that you restart anyway to ensure that the setup is really completed.

Messages 'The page cannot be displayed' while running ViewPoint Web Access

These messages may be the result of anti-virus software scanning that causes IIS to restart ViewPoint Web Access. Turning off virus scanning for the file **global.asa** may help resolve this issue. For more information, go to <http://support.microsoft.com> and search the Knowledge Base for article #Q248013.

Any of the following error messages may signal this condition:

- 'The page cannot be displayed'
- 'HTTP/1.1 404 Object Not Found'
- 'HTTP Error 500-12 Application Restarting'

Web Services \Audio folder contains many files

When a user accesses an audio file via ViewPoint Web Access (for example, records a greeting, or listens to a voice message), the audio file is copied from the TeleVantage Server to the following location on the Web server:

C:\Program Files\TeleVantage Web Services\Audio

Normally, these temporary audio files are deleted automatically. If they are not deleted, audio files will accumulate in the folder, unnecessarily consuming disk space on the Web server. A file will not be deleted automatically in either of the following cases:

- The account under which IIS runs on the Web server does not have Delete permission for the **\Audio** folder.
- The file is marked Read-only.

To fix the problem:

First, make sure that the account under which IIS runs has Delete permission for the **\Audio** folder. By default, this is the same account as the anonymous account for IIS. To do so:

1. On the Windows Desktop, right-click **My Computer**, and then click **Manage**.
2. In the Computer Management dialog box, in the left pane, expand **Services and Applications > Internet Information Services > Web Sites > Default Web Site**.
3. Right-click **TeleVantage**, and then click **Properties**.
4. On the Directory Security tab, click **Edit** in the **Anonymous access and authentication control** section.

5. In the Authentication Methods dialog box, make a note of the **User name** in the **Anonymous access** section, and then exit.
6. In Windows Explorer, right-click the **Audio** folder and then click **Properties**. The default location is:
C:\Program Files\TeleVantage Web Services\Audio
7. In the Properties dialog box, on the Security tab, click on the user name that you identified above. Verify that the user has Full Control for the **Audio** folder.
8. If necessary, delete any Read-only files from the **Audio** folder manually.

Once the Delete permission has been set according to these instructions, the next time that Web Services connects to the TeleVantage Server after a Server restart, the **Audio** folder will be emptied automatically.

Applications that use the TeleVantage Multi-line TAPI Service Provider do not work after stations are reordered or added on the TeleVantage Server

If the stations on the TeleVantage Server are reordered for any reason (for example, stations are added or deleted, or a Dialogic board that provides station resources is added or removed), applications that use the Multi-line TSP (Act!, Goldmine, and so forth) may no longer work.

To resolve the problem, if stations are reordered after the TeleVantage Server is restarted, be sure to restart the Terminal Services PC to re-initialize TAPI.

Message ‘TeleVantage Recording Archive Service has not been configured to archive this server’ when starting the Administrator on the TeleVantage Server

The full text of the message is:

‘Voice mail archiving is currently enabled, but the new TeleVantage Recording Archive Service has not been configured to archive this server. Voice mail will not be archived until the TeleVantage Recording Archive Service has been configured to archive this server.’

This message appears if voice mailboxes on this TeleVantage Server have been selected for automatic archiving, but the Server itself has not been added to (or has been removed from) the **TeleVantage Servers** list (the list of Servers from which mailbox recordings will be archived) in the TeleVantage Recording Archive Service Manager Settings dialog box on the archive server PC.

You can recognize this problem in the TeleVantage Administrator on the Recordings / Archive tab (**Tools > System Settings**.) The **Archiving server** field will be blank, but the **Archive the following mailboxes** list will contain one or more entries.

Mailbox recordings will not be archived from this TeleVantage Server until the Server is added to the **TeleVantage Servers** list on the archive server PC. For instructions, see “Configuring the Recording Archive Service” in Chapter 12 in *Administering TeleVantage*.

Other troubleshooting topics

This section describes other problems that you may encounter.

Microsoft WinSock Proxy blocks local UDP traffic

Microsoft Proxy Server is a gateway to the Internet that allows multiple workstations on a single network to share one Internet connection.

MS Proxy Server can sometimes block UDP (User Datagram Protocol) traffic on the network. If DCOM is configured to use UDP first and UDP traffic is blocked by MS Proxy Server, TeleVantage workstation applications may not be able to establish a DCOM connection with the Server.

Preconditions	Symptoms	Resolution
MS Proxy Server installed on the network.	<p>The following error(s) will be visible in the TeleVantage logs.</p> <p>In TvInfo log: Automation error -2147023174</p> <p>In TVComLog.txt:</p> <p>AtlAdvise("{1D7D9320-64EC-11D1-B866-006097C0E8CC}") failed; HRESULT 0x800706ba: The RPC server is unavailable.</p>	<p>Move Connection-oriented TCP to the top of the DCOM protocol list. See "To change the protocol to TCP on a Windows PC" on page 10-25.</p>

Microsoft WinSock Proxy client DLL causes deadlock in RPCSS

Microsoft Proxy Server is a gateway to the Internet that allows multiple workstations on a single network to share one Internet connection. RPCSS is the DCOM resolver/end-point mapper process. MS Proxy Client can sometimes cause a deadlock in RPCSS.

Preconditions	Symptoms	Resolution
MS Proxy Client is installed on the client PC.	TeleVantage ViewPoint hangs at the splash screen.	Uninstall MS Proxy Client.

CHANGING THE DOMAIN OF THE TELEVANTAGE SERVER

This appendix describes how to change the domain of the TeleVantage Server PC for any of the following reasons:

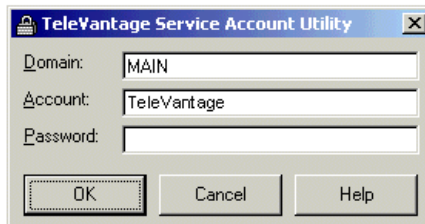
- Your network configuration has changed, and you now have a domain that you want the TeleVantage Server to be a part of.
- You recently installed a Microsoft Exchange Server on your network, and you now want to support e-mail notification in TeleVantage. To support this feature, the TeleVantage Server must be on a domain.
- You changed the name or password of the domain user.
- You moved the TeleVantage Server to a different domain.

You must reconfigure Microsoft Windows services and Component Object Model (COM) settings to enable TeleVantage to start on the new domain. To do so, use the TeleVantage Service Account Utility, which automatically updates TeleVantage services and COM settings to reflect your changes. (The TeleVantage Service Account Utility also resets COM settings required by the Dialogic board drivers.)

If you do not have a TeleVantage Server user on the new domain, create one. See “Creating the Windows 2000/XP/2003 user for TeleVantage” on page 8-3.

To run the TeleVantage Service Account Utility

1. Run the file **TVAccUtl.exe**, which is located in the TeleVantage Server directory. The default location for this directory is **C:\Program Files\TeleVantage Server**.



2. Enter the **Domain** name, **Account** name, and **Password** for the domain.
 3. Click **OK**.
-

MANAGING TELEVANTAGE LICENSES

This appendix provides background information on how TeleVantage licenses work, and addresses the following topics:

- **How TeleVantage licenses affect system behavior.** See page D-1.
- **How to activate licenses manually.** See page D-4.
- **How to import and export license information to a license file.** See pages D-7 and D-8.
- **How hardware locking works.** See page D-9.
- **Installing an optional dongle.** See page D-11.
- **Terms of use.** See page D-10.
- **Special licensing situations.** See page D-11.

For information on how to enter licenses using the TeleVantage Administrator, and activate them using Web-based one-click activation, see “Entering and activating your TeleVantage licenses” on page 10-16.

How TeleVantage licenses affect system behavior ---

It is strongly recommended that you enter all of your licenses and activate them immediately after installing the TeleVantage Server, as described on page 10-16. Also, if you add licenses to a previously-activated system (for example, adding 10 new Trunk licenses), you must activate again. In either case, activating licenses immediately avoids all of the disruptions (described below) that occur before licenses are activated.

For more about license activation, see page D-3.

Before your licenses are activated

You can use your TeleVantage system for 60 days without activating your licenses. The 60-day grace period starts on the day you enter the licenses using the TeleVantage Administrator. You can activate your licenses at any time during or after the 60 days.

Until you activate your licenses, starting any TeleVantage workstation application will pause at the splash screen, to remind you of the number of days left. Users must click **OK** to continue running the application.

After your licenses are activated

Once you activate your TeleVantage licenses, the 60-day grace period is eliminated and your system is fully licensed. All of the TeleVantage workstation applications are fully enabled, and remain so unless the hardware ID you choose stops operating or is removed.

After 60 days without activation

If you do not activate your licenses within 60 days, the following occur:

- All TeleVantage workstation applications—with the exception of the TeleVantage Administrator—display a message at startup stating that “Your licenses have expired. Ask your TeleVantage Administrator to activate system licenses to fully enable the features of this application.” When the user clicks **OK** to close the message window, the application shuts down.
- The TeleVantage Server continues to function normally, so users can place and take calls, including emergency calls. However, users must use the phone to do so, as they will no longer be able to use TeleVantage ViewPoint.
- The only functions available in the TeleVantage Administrator are the ability to start and stop the TeleVantage Server, perform backups, and enter and activate licenses. You can no longer add users, make configuration changes, and so forth.

Using trial licenses

Trial licenses allow you to evaluate TeleVantage for 60 days, starting on the day you enter the trial licenses using the TeleVantage Administrator. Trial licenses cannot be activated.

At any time during or after the trial period, you can purchase full licenses from your TeleVantage provider, and then enter and activate them. The trial period can only be extended by obtaining a new set of trial licenses from your TeleVantage provider.

With trial licenses, starting any TeleVantage workstation application will pause at the splash screen, to remind you of the number of days left. Users must click **OK** to continue running the application. In addition, when users take their phone off-hook during the last 5 days of the trial period, they hear a message warning of the upcoming end of the trial period before they get dial tone.

After the 60-day trial license period ends, the following occur:

- **TeleVantage will not answer any calls, no new calls can be placed, and all active calls are dropped. The TeleVantage Server shuts down and cannot be restarted.**
- All TeleVantage workstation applications—with the exception of the TeleVantage Administrator—display a message at startup stating that “Your licenses have expired. You must purchase full licenses to fully enable the features of this application.” When the user clicks **OK** to close the message window, the application shuts down.
- The only available function in the TeleVantage Administrator is the ability to enter and activate licenses.

Viewing the status of licenses on your system

The status of the licenses on your system is displayed in the splash screen and About dialog box for any of the TeleVantage workstation applications. On the splash screen licenses have not yet been activated on the system, the number of days left in the 60-day grace period is also displayed.

About entering licenses

You use the TeleVantage Administrator to enter licenses into your system. There are two ways to enter licenses:

- **Enter licenses manually.** For details, see “Entering and activating your TeleVantage licenses” on page 10-16.
- **Import licenses from a license file.** For details, see “Importing license information” on page D-7.

About activating licenses

Activating your TeleVantage licenses does the following:

- Eliminates the 60-day grace period so your system is fully operational.
- Disables on-screen messages and telephone warnings that occur before licenses are activated and when using trial licenses. See “How TeleVantage licenses affect system behavior” on page D-1 for more information about how systems behave before and after licenses are activated, and when using trial licenses.
- Locks the licenses to your TeleVantage Server hardware so they cannot be used on more than one system at the same time.

Activation consists of the following steps:

1. You submit your license and hardware information to Vertical using one of the methods described in the next section.
2. Vertical verifies the information and locks your licenses to a hardware ID on your TeleVantage Server.
3. Activated licenses are returned to you and applied to your TeleVantage system.

Note: When you activate licenses, the license information you submit to Vertical is verified and saved for future troubleshooting purposes.

Once a system is activated, it stays activated until you add additional licenses (for example, you purchased another Station license to support more users), or the hardware ID against which the licenses are locked stops operating or is removed. At that time, the system becomes inactivated and the 60-day grace period begins, until you activate again. You will also need to activate your licenses again if you change the hardware ID on the TeleVantage Server. See “Terms of use” on page D-10 for information on how hardware locking works.

How to activate your licenses

You can activate TeleVantage licenses in two ways:

- Automatically, using one-click activation
- Manually, by submitting your exported license information directly to the Vertical activation website

If you encounter problems with any of the activation methods or have questions, contact your TeleVantage provider.

Important: Once your licenses are activated, back up the TeleVantage database so that you do not have to repeat the activation process if you ever need to restore the TeleVantage database.

About one-click activation

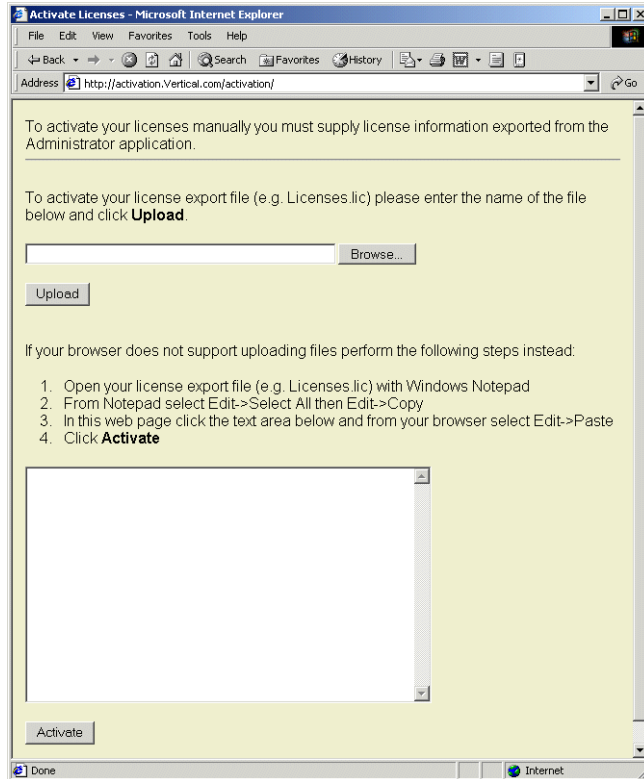
If you have Internet access on the PC on which you are running the TeleVantage Administrator, one-click activation is the easiest way to activate your licenses. When you use one-click activation, all the required information is submitted and imported automatically for you. See “Entering and activating your TeleVantage licenses” on page 10-16 for details about using one-click activation.

Activating licenses via the web

If you do not have Internet access on your Administrator PC or have a problem with one-click activation, you can go directly to the Vertical activation website to activate your licenses.

To activate licenses via the web

1. Export your licensing information as described on page D-8. The license file contains all the required information for successful activation
2. Using your browser, go to **http://activation.Vertical.com/activation**



Note: If you have problems with one-click activation or activating via the web, make sure that the TeleVantage Administrator can connect on TCP Port 80 to the host **activation.Vertical.com**. Note that Port 80 is the default port for HTTP so it is the most common port to be open, but it is possible that your network administrator has blocked that Port and redirected HTTP traffic over a different Port.

3. Supply your licensing in either of the following ways:
 - If your browser supports file uploads, enter the name of the license file you exported from the Administrator, and then click **Upload**.
 - If your browser does not support file uploads, paste the contents of your license file into the web page. To do so:
 - Open your exported license file using Windows Notepad.
 - In Windows Notepad, select **Edit > Select All**, and then select **Edit > Copy**.
 - Click in the text box on the Vertical activation database web page. In your browser, select **Edit > Paste**.
 - Click **Activate**.
4. A license file containing activated licenses—called activation.lic—is downloaded to you after a brief pause. Save the file to your PC, and then import the file according to the instructions in “Importing license information” on page D-7.

Licensing errors

If activation was not successful, one of the following error messages is displayed. If you have further questions or need help, contact your TeleVantage provider.

- **“Unknown activation failure”**. An unexpected error has occurred.
- **“Activation database unavailable”**. The activation database is not available. Please try activating again later.
- **“Invalid license”**. One or more licenses in an exported license file is invalid. Export your licenses again from the TeleVantage Administrator and activate them again.
- **“Exceeded maximum activation count”**. One or more of your licenses has already been activated using a different hardware ID. See “Terms of use” on page D-10 for more information.
- **“Exceeded maximum activation depth”**. One or more of your licenses has already been locked to the maximum number of hardware IDs allowed. See “Terms of use” on page D-10 for more information.
- **“Invalid activated license”**. The license file that you are importing contains one or more invalid licenses. Activate your licenses again.
- **“Partner ID Verification Database is unavailable”**. Vertical schedules maintenance to the Partner ID Verification Database at times that cause the least disruption to customers. However, sometimes unplanned downtime may occur. If you receive this error during normal business hours (9 AM to 8 PM EST, Monday through Friday), contact your Technical Support representative for more information on when the Partner ID Verification Database will be available.

Importing license information

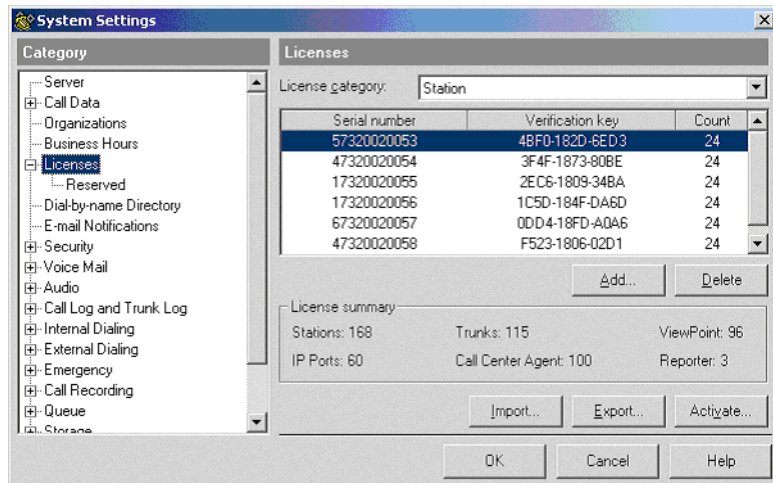
You import license information for any of the following reasons:

- To enter licenses, if your TeleVantage provider supplied you a license file that contains your license serial numbers and verification keys
- After successfully activating your licenses manually via the activation website
- To use licenses exported from another PC, for example, if you have moved your TeleVantage Server to another PC
- To rebuild a TeleVantage Server

During an import, only new license records are imported. Licenses that were that were imported or activated previously are ignored.

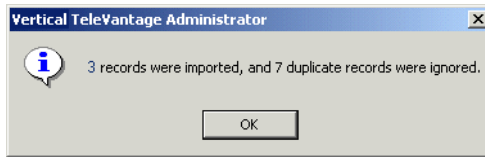
To import licensing information

1. In the TeleVantage Administrator, choose **Tools > System Settings**, and then click **Licenses** in the Category pane.



2. Click **Import**. The Import File From dialog box opens. Browse to the license file that you want to import, select it, and then click **Open**.

3. After the import finishes, click **OK** to close the message window that displays the number of license records that were imported.



Note: Only new license records are imported. Licenses that were imported or activated previously are ignored.

After importing new licenses, be sure to activate them using one of the methods described in “About activating licenses” on page D-3.

Exporting license information

You export license information for any of the following reasons:

- To activate your licenses manually, via the activation website
- To create a record of all your licenses that you can view and print
- To use the licenses on another PC, if you need to move your TeleVantage Server to another PC
- To use the licenses to rebuild a TeleVantage Server
- When reporting a license issue to your Technical Support representative

Exporting your TeleVantage licenses creates a license file—a text file with the extension.LIC—that contains the following information:

- Serial numbers and verification keys for all the licenses in your system
- MAC address of the network interface cards (NICs) on the TeleVantage Server, if one is present
- Serial number of the hard disk drive where the TeleVantage Server was installed
- Serial number of your dongle, if one is present
- Profile information that you entered when you activated licenses

You can view the exported license file using a text editor.

To export license information

1. In the TeleVantage Administrator, choose **Tools > System Settings**, and then click **Licenses** in the Category pane.
2. Click **Export**.

3. In the Registration Information dialog box, update or add customer profile information, and then click **OK**.

Note: If you do not know your **Partner ID** (a required field), you can request it from the place where you purchased TeleVantage.

4. The Export Licenses To dialog box opens. Browse to the location where you want to save the exported license file, and then click **Save**.
5. Click **OK** to close the message window that displays the number of license records that were exported.



More about TeleVantage licensing

How hardware locking works

Your TeleVantage licenses can only be used on one system at a time. When you activate your TeleVantage licenses, they are locked to one of the following hardware IDs on your TeleVantage Server PC. You can choose which hardware ID to use. There are pros and cons to each one.

- **Network card (NIC).** Locking your licenses to the MAC address of a NIC on the TeleVantage Server PC is probably the best choice, since NICs are cheap and easy to move to another PC. However, if your NIC is located on the PC motherboard it cannot be moved. In that case, lock your licenses to a dongle or hard drive, or buy another NIC and install it in the TeleVantage Server PC.
- **Dongle.** You can lock your licenses to the serial number of a dongle, if one is installed on the TeleVantage Server PC along with the dongle drivers. Dongles are very easy to transport to another PC, and are a good choice if you may eventually move the TeleVantage Server to a different PC, or you do not want to or cannot move your NIC or hard drive. Also, since a dongle serves no other purpose, it will rarely fail. However, dongles cost money and must be purchased separately. If you choose this option, see “Installing a dongle” on page D-11.
- **Hard drive.** Locking your licenses to the serial number of a hard drive on the TeleVantage Server PC is another option. However, hard drives are more difficult to move to another PC, and may have to be replaced or upgraded.

The hardware ID is verified each time the TeleVantage Server or any of the workstation applications start. If the hardware ID is not detected (for example, the dongle fell out or your NIC failed), your licenses revert to an unactivated state, and the 60-day grace period starts again.

If necessary, you can relock your licenses to a different hardware ID once, as described in the next section.

Terms of use

The following terms of use apply when you activate licenses. License locking and relocking are automatic until these limits are reached. At that point, you must contact your TeleVantage provider or technical support representative for assistance.

- **You can activate a license once.** Once an license is activated, it can never be activated again.

For example, if you activate Trunk license 1 on TeleVantage Server A, and then try to activate Trunk license 1's serial number and verification key on a TeleVantage Server B, the activation will fail.

- **You can change the hardware ID for an activated license once.** There may be circumstances under which you need to use your activated TeleVantage licenses with a different hardware ID, for example, a failure on the network card or hard disk drive used for the initial activation, a catastrophic hardware failure such as a flood or fire, or a complete upgrade or migration of the TeleVantage Server, where you do not want to move any of the old hardware over to the new PC. You are allowed to relock your licenses to a new hardware ID once without contacting your TeleVantage provider.

For example, if you activate your licenses on a TeleVantage Server with hardware ID A, and then need to replace your network card, you can reactivate the licenses using hardware ID B. However, if you try to reactivate the same licenses a third time using a different hardware ID, the activation will fail. Also, after activating the licenses using hardware ID B, the licenses on hardware ID A can no longer be upgraded to new versions of TeleVantage, and additional licenses cannot be added to hardware ID A unless a fresh set of licenses is entered and activated.

Installing a dongle

See page 3-10 for a list of supported dongles.

To install a dongle on the TeleVantage Server

1. Run the Sentinel System Driver installation program from the following location on the Master CD:

\\dongle\\setup.exe

Follow the on-screen instructions.

2. In the Setup Type dialog box, select **Complete**, and then click **Next**.
3. Plug the dongle into the appropriate port.
4. Restart the TeleVantage Server.

Now when you run the TeleVantage Administrator, the dongle will appear in the **Lock your licenses to this hardware key** drop-down list in the Activation Information dialog box.

Special licensing situations

This section describes situations that may require you to relock your TeleVantage licenses to a different hardware ID, as described in “Terms of use” on page D-10.

Once you have installed the TeleVantage Server on a PC with the new hardware, you must activate the licenses again using the one of the methods described on page D-4.

Moving licenses to another TeleVantage Server

If you want to use your TeleVantage licenses on a different Server, be aware that once activated, they will no longer be available on the original Server.

Moving the TeleVantage Server to another PC

If you are moving the TeleVantage Server to another PC, you can avoid having to activate the licenses again if you move the network interface card (NIC) as well. If you have more than one NIC on the TeleVantage Server, you only have to move the one to which the TeleVantage licenses are locked. If you have no NIC, move your hard drive where the TeleVantage Server was installed.

Moving the hardware is optional. If you cannot move the NIC or hard drive—for example, the NIC is attached to the PC’s motherboard, or the hard drive failed or is too small—simply activate the licenses again on the new PC. See “Terms of use” on page D-10 for information about limits on activating TeleVantage licenses again on new hardware.

PERFORMING UNATTENDED WORKSTATION INSTALLATIONS

You can install the TeleVantage workstation applications unattended (silently), so that your organization can perform automatic software updates or use a network maintenance system that performs remote installations. When running Workstation Setup unattended, you can perform either of the following types of installation:

- **Typical installation.** In a typical installation, the following occur. You cannot change any of these options.
 - When installing TeleVantage for the first time on the TeleVantage Server, only the Administrator is installed. On all other PCs, when installing TeleVantage for the first time, only TeleVantage ViewPoint is installed.

When upgrading from a previous version of TeleVantage, Workstation Setup detects the workstation applications that are installed, and upgrades those applications to the current version.

 - The workstation applications are installed in the default location.
- **Custom installation.** In a custom installation, you can specify which workstation applications to install, change the installation drive or folder, uninstall workstation applications, and specify other options.

Note: Because the PC where the workstation applications are installed must be restarted to complete the installation, you should perform unattended installations when users will not be interrupted while they are working.

Performing a typical unattended installation

To perform a typical unattended workstation application installation, run the following command on the PC where the workstation applications will be installed:

```
\\<TeleVantage Servername>\Netsetup\setup.exe /s /v"/qn /l*v  
%TEMP%\wssetup.log"
```


Performing a custom unattended installation

To perform a custom unattended workstation application installation, run the following command on the PC where the workstation applications will be installed, including any of the parameters described in the table on page E-3.

```
\\<TeleVantage Servername>\Netsetup\setup.exe /s /v"/qn CUSTOM_INSTALL=1  
/l*v %TEMP%\wssetup.log"
```

This example only shows the parameters required for *any* custom unattended installation. For other examples of custom installation commands, see the next section.

Note that any string value that contains a space must be delimited with the characters `/"` before and after the string value, as in the following example:

```
TVCMAFOLDER="/C:\Program Files\CMA/"
```

Custom unattended installation examples

The following examples demonstrate different unattended installations. See “Workstation Setup command parameters” on page E-3 for details on the command parameters you can sue.

This command installs only the TeleVantage Administrator in the default location:

```
setup.exe /s /v"/qn CUSTOM_INSTALL=1 ADDLOCAL=Admin"
```

This command installs the TeleVantage Administrator and ViewPoint in the default location:

```
setup.exe /s /v"/qn CUSTOM_INSTALL=1 ADDLOCAL=Admin,Client"
```

This command installs all of the workstation applications in the default location:

```
setup.exe /s /v"/qn CUSTOM_INSTALL=1 ADDLOCAL=ALL"
```

This command does the following:

- Installs the single-line TAPI Service Provider in the default location.
- Installs the Contact Manager Assistant in the specified location.
- Configures the single-line TAPI Service Provider.
- Launches the Contact Manager Assistant when the installation completes, if a restart is not required.

```
setup.exe /s /v"/qn CUSTOM_INSTALL=1 ADDLOCAL=TSP,CMA TVSERVER=TeleVantage  
TVSTATION=1 TVUSER=Operator TVPASSWORD=0 TVTSPAPPHANGUP=1 TVTSPTRACE=1  
TVCMAFOLDER="/C:\Program Files\CMA/" TVLAUNCHCMA=1 /l*v  
%TEMP%\wssetup.log"
```

When run on a Terminal Server PC, this command installs all of the workstation applications in the default location:

```
setup.exe /s /v"/qn CUSTOM_INSTALL=1 ADDLOCAL=ALL TERMINALSVRMODE=1"
```


Workstation Setup command parameters

The following parameters can be specified in any order. Separate parameters with spaces.

Name	Value	Description
CUSTOM_INSTALL	Integer	Installation type: 0 = (Default) Typical installation. 1 = Custom installation.
ADDLOCAL	Admin Client CMA TSP ALL	Workstation application to install: To install more than one application, separate each one with a comma (,), for example: <code>ADD_LOCAL=Admin,Client</code> To install all of the workstation applications, specify ALL , for example: <code>ADDLOCAL=ALL</code>
REMOVE	Admin Client CMA TSP ALL	Workstation application to remove: To remove more than one application, separate each one with a comma (,), for example: <code>REMOVE=Admin,Client</code> To remove all of the workstation applications, specify ALL , for example: <code>REMOVE=ALL</code>
TVSERVER	String	Name of the TeleVantage Server PC: <code>TVSERVER=TeleVantage</code>
TVSTATION	String	Station ID of the phone that will be used by the person at this PC: <code>TVSTATION=186</code> If you do not know the station ID, pick up the phone and dial *0. If there is not a TeleVantage phone near this PC, enter a station ID of 0. <code>TVSTATION=0</code>

Name	Value	Description
SUPPRESS_MSGS	Integer	<p>0 = (Default) Workstation Setup displays message boxes on the PC where the applications are installed. Workstation Setup stops processing and waits until someone responds to each message box.</p> <p>1 = Suppress display of message boxes. The messages are still written to the Workstation Setup Log (see "Performing a typical unattended installation" on page E-1.)</p>
<p>Use the following 4 parameters to specify the complete path to the location where a workstation application will be installed, for example:</p> <p style="padding-left: 40px;">TVCLIENTFOLDER="/C:\Program Files\TV Client/"</p> <p>If not specified, the application will be installed in the default location.</p>		
TVCLIENTFOLDER	String	Location where ViewPoint will be installed.
TVADMINFOLDER	String	Location where the Administrator will be installed.
TVTSPFOLDER	String	Location where the single-line TAPI Service Provider will be installed.
TVCMAFOLDER	String	Location where the Contact Manager Assistant will be installed.
<p>Optionally, use the following 4 parameters if you are installing the single-line TAPI Service Provider (ADD_LOCAL=TSP or ADD_LOCAL=ALL.) If you do not provide this information during the unattended install, you must run the TAPI Configuration Wizard later to configure TAPI SP for the user at this PC. See "Configuring the TeleVantage TAPI Service Provider" on page 11-8 for more information</p>		
TVUSER	String	<p>TAPI SP only. User name of the person assigned to the station ID in TVSTATION:</p> <p>TVUSER=SRyan</p> <p>Note: TVUSER must be the user assigned to the station ID in TVSTATION, else this parameter is ignored.</p>
TVPASSWORD	String	<p>TAPI SP only. User's TeleVantage password:</p> <p>PASSWORD=17530</p>

Name	Value	Description
TVTSPAPPHANGUP	Integer	<p>TAPI SP only. Specifies whether applications using TAPI SP can hang up calls.</p> <p>0 = (Default) Applications using the TAPI SP cannot hang up calls. 1 = Applications using the TAPI SP can hang up calls.</p> <p>Important: Some contact manager programs experience problems when TVTSPAPPHANGUP=1. For details, run the TAPI SP Configuration Wizard after installing TAPI SP, and read the Help for the second Wizard screen. Do set TVTSPAPPHANGUP=1 for users who use Microsoft Outlook as their contact manager.</p>
TVTSPTRACE	Integer	<p>TAPI SP only. Specifies whether TAPI SP writes debugging information to disk when placing calls. This information is useful when communicating with technical support.</p> <p>0 = (Default) TAPI SP does not create a trace file. 1 = TAPI SP creates a trace file.</p> <p>Note: The trace file is located at the following location:</p> <p>C:\Program Files\TeleVantage Client\Logs\Tvtsp.txt</p>
Set the following parameter to 1 when installing workstation applications on a server PC running Windows Terminal Server or Citrix MetaFrame so that users do not have to re-enter logon information when they access the applications.		
TERMINALSVRMODE	Integer	<p>1 = Individual user logon settings are preserved for users who access workstation applications via Terminal Services. 0 = (Default) Mode used for non-Terminal Services installations.</p>
Use the following 3 parameters to launch a workstation application after the installation completes.		
Note: Each parameter takes effect only if the application was installed successfully and no restart is necessary. These parameters are not affected by the REBOOT parameter setting.		
TVLAUNCHCLIENT	Integer	<p>0 = (Default) Do not start TeleVantage ViewPoint after the installation completes. 1 = Start ViewPoint after the installation completes.</p>

Name	Value	Description
TVLAUNCHADMIN	Integer	0 =(Default) Do not start the Administrator after the installation completes. 1 = Start the Administrator after the installation completes.
TVLAUNCHCMA	Integer	0 = (Default) Do not start the Contact Manager Assistant after the installation completes. 1 = Start the Contact Manager Assistant after the installation completes.
REBOOT	String	Force = (Default) Automatically restarts the PC where the workstation applications are installed after the installation completes. ReallySuppress = Do not restart the PC after installation completes. If you specify REBOOT= ReallySuppress , the PC must be restarted later.

Verifying that an unattended installation was successful

You can determine if a unattended installation was successful by viewing the Workstation Setup Log. This file is created in the **\Temp** directory on the PC where Workstation Setup was run. When an installation is successful, an entry appears near the end of the file:

```
MSI (c) (80:34): Product: TeleVantage workstation applications -- Installation
operation completed successfully.
```

Note: You can also examine the Windows Event Log on the PC to see if the installation completed successfully.

CONFIGURING TELEVANTAGE FOR THE WINDOWS FIREWALL

Important: The information in this appendix applies only if your TeleVantage Server or any workstation PCs are running Windows XP SP2 or Windows Server 2003 SP1.

This appendix includes the following topics:

- “Adjusting Windows Firewall exceptions.” See page F-2.
- “Windows Firewall exceptions added for TeleVantage.” See page F-4.
- “Adjusting Windows Firewall exceptions for TeleVantage Web Services.” See page F-5.
- “Upgrading Windows after TeleVantage is installed.” See page F-6.

Overview

Once the TeleVantage Server is installed and the TeleVantage workstation applications are installed or upgraded, the firewall settings on all Windows XP SP2/Windows Server 2003 SP1 PCs running TeleVantage applications are automatically updated so that TeleVantage can operate properly on most networks. These changes are made because TeleVantage will not work properly with the default Windows Firewall settings for these versions of Windows.

Without these modifications to the default Windows Firewall settings, TeleVantage applications cannot communicate over a network. If necessary, you can tailor these modifications to match your unique network configuration and security requirements, as described later in this Appendix.

About the Windows Firewall

The Windows Firewall is designed to protect Windows from unwanted network access, including potentially hostile viruses. Left unchanged, these security measures also prevent TeleVantage workstation applications from receiving requests from the TeleVantage Server (for example, a request to display a new call in the Call Monitor.) Similarly, TeleVantage Servers will not be able to accept requests from the TeleVantage workstation applications (for example, to make a call.)

To enable necessary communication between TeleVantage components, TeleVantage adds several entries to the Firewall Exceptions List on all TeleVantage PCs running these versions of Windows. (The TeleVantage Server PC is updated at installation; each TeleVantage workstation PC is updated as soon as a TeleVantage application on it runs for the first time after installation or upgrade.)

For a complete list of the Windows Firewall exceptions added by TeleVantage and their associated default values, see “Windows Firewall exceptions added for TeleVantage” on page F-4.

You *must* change the default firewall security settings using the TeleVantage Administrator according to the instructions in “Adjusting Windows Firewall exceptions” on page F-2 if either of the following are true:

- Your TeleVantage Server and workstation PCs are not all located on one subnet.
- Your TeleVantage Server’s IP address can change because you use DHCP to obtain an IP address automatically

If you do not make these changes, TeleVantage workstation applications such as ViewPoint may not operate properly (for example, calls will not appear in the Call Monitor.)

Adjusting Windows Firewall exceptions

Perform the following procedure on any TeleVantage Server that is running Windows XP SP2/Windows Server 2003 SP1. Your changes will be picked up by workstation PCs the next time that they connect to the Server.

1. Start the TeleVantage Administrator and choose **Tools > System Settings**.
2. Select the Security \ Server Firewall tab.

The settings on the Security \ Server Firewall tab determine which IP addresses will be allowed to communicate with the TeleVantage Server PC, including the IP addresses of any PCs that will be running TeleVantage workstation applications such as ViewPoint.

3. Choose one of the following options to define the scope for the Windows Firewall exceptions required by TeleVantage:
 - **Any computer (including those on the internet).** With this option, the TeleVantage Server PC accepts network traffic from all IP addresses. TeleVantage connections will always work with this setting.
Important: This setting leaves your Windows PC the most vulnerable to potentially harmful connections.
 - **My network (subnet) only.** With this option (the default setting), the TeleVantage Server PC accepts traffic only from other TeleVantage PCs within your subnet.
The range of your subnet is defined by your subnet mask, which is usually 255.255.255.0. For example, with an IP address of 192.168.114.20 and subnet mask 255.255.255.0, the PC would accept communication from IP addresses 192.168.114.1 through 192.168.114.255.

Note: Vertical recommends this setting as the easiest and most secure setting that guarantees communication for the TeleVantage system on a typical LAN where all TeleVantage PCs are on the same subnet. If all of your TeleVantage PCs are not on the same subnet, you cannot choose this option, and must choose either **Any computer** or **Custom List**.

- **Custom list.** With this option, you list the IP addresses, subnets, or both representing the PCs whose network traffic is accepted by this Server PC.

You can enter an individual IP address, or a range of IP addresses using an IP address followed by a forward slash (/) and a subnet mask. Separate each entry in the list with a comma and no space.

For example, entering 192.168.114.201/255.255.255.0 specifies the range 192.168.114.0 through 192.168.114.255. (Note that choosing this option and entering your IP address followed by your subnet mask is the same as choosing the option **My network (subnet) only**.)

- **None (firewall must be configured manually).** This option makes no modifications to the Server PC's Windows Firewall.

Important: The TeleVantage system will not work properly if you choose this option. However, you can manually configure the firewall exceptions added for TeleVantage (listed on page F-4) through Windows to permit TeleVantage system communications. To configure firewall exceptions manually, choose **Start > Settings > Control Panel > Windows Firewall**. Consult your Windows documentation for further instructions.

Go to step 5.

4. Select the Security \ Workstation Firewall tab, and then click **Custom list**.

The settings on this tab determine which IP addresses will be allowed to send network requests to the TeleVantage workstation PCs. You only need to specify the IP address of your TeleVantage Server PC, which you can do in several ways.

- If your TeleVantage Server has a fixed IP address, click **Server IP Address** to automatically enter the IP address(es) of your TeleVantage Server PC.
- If you have multiple TeleVantage Servers, enter each Server's IP address, so that any TeleVantage workstation can connect to any TeleVantage Server. Separate each IP address with a comma and no space.
- If your TeleVantage Server uses DHCP to obtain an IP address dynamically, be sure to specify the complete list of IP addresses or subnets that could be dynamically assigned to your TeleVantage Server PC.

Note the following:

- If your Server's IP address ever changes you must update this setting in order for the TeleVantage workstation applications to connect.

If you are using TeleVantage SoftPhone, the Custom List must include the IP addresses of both the TeleVantage Server PC and your Internet telephony board, even if you are using a host-based stack. Separate each IP address with a comma and no space, for example, 127.55.55.55,127.55.55.56.

5. Click **OK** to close the System Settings dialog box.

When any TeleVantage workstation application starts, it reads the Security \ Workstation Firewall settings you set above. Then it modifies the PC's Windows Firewall Exception List to match those settings. For example, if you entered 192.168.114.20 in the Custom List (the fixed IP address of your TeleVantage Server), then as soon as ViewPoint is run on any PC, that PC's Windows Firewall is opened to DCOM traffic from 192.168.114.20 so it can receive events from the TeleVantage Server.

Note: TeleVantage workstation PCs can always access the latest Security \ Workstation Firewall settings as long as the Server's firewall is not blocking the IP address of the TeleVantage workstation PC.

If you make changes to the Administrator's Security \ Workstation Firewall tab while one or more TeleVantage workstation applications are connected, they will not get the new settings until they restart. You can force a restart of all workstations applications connected to your TeleVantage Server by restarting the TeleVantage Server via **Tools > Shutdown Server**.

Note: PCs running the TeleVantage TAPI Service Provider must be restarted to apply the new firewall settings.

Windows Firewall exceptions added for TeleVantage

The following Windows Firewall exceptions are added to any Windows XP SP2/Windows Server 2003 SP1 TeleVantage Server PCs and TeleVantage workstation PCs using the scoping you specified in the TeleVantage Administrator System Settings Security \ Server Firewall and Security \ Workstation Firewall tabs, according to the instructions in the previous section. All of these exceptions are required to run TeleVantage across a network.

TeleVantage Server firewall exceptions

The following firewall exceptions are added to TeleVantage Server PCs:

- DCOM Resolver: Port TCP135.
- MSSQLSERVER: TeleVantage dynamically determines the actual EXE name(s) based on the installed instances of MSDE or SQL Server.
- TeleVantage Device Monitor: TVDevMon.exe.

- TeleVantage Server: TVServer.exe.
- TeleVantage Control: TVCntrl.exe.
- File and Printer Sharing: A standard, built-in firewall exception that TeleVantage enables. The ports include TCP139, TCP445, UDP137, and UDP138.

Workstation PC firewall exceptions

The following firewall exceptions are added to workstation PCs:

- DCOM Resolver: Port TCP135.
- TeleVantage ViewPoint: TVClient.exe.
- TeleVantage Administrator: TVAdmin.exe.
- TeleVantage Advanced Settings Editor: TVSettings.exe.
- TeleVantage Reporter: TVReporter.exe.
- TeleVantage Web Services: TVWeb.exe.
- TeleVantage Voicemail Archive Browser: TVRecordingBrowser.exe.
- TeleVantage Enterprise Manager: TVEM.exe.
- TeleVantage SecBridge: TVSecBrg.exe.

Adjusting Windows Firewall exceptions for TeleVantage Web Services

Note: The information in this section applies only to TeleVantage Servers and workstation PCs running TeleVantage Web Services.

Required steps

The following steps are required on all TeleVantage Server PCs and workstation PCs running TeleVantage Web Services in order to open a Windows Firewall exception for port 80, the default port used for HTTP traffic. (This required port exception is not added automatically.)

1. From the Start menu, select **Control Panel > Windows Firewall**. The Windows Firewall dialog box opens.
2. On the Exceptions tab, click **Add Port**.
3. In the Add a Port dialog box, enter the following:
 - Name** = Web Server.
 - Port number** = 80.
 - Verify that the **TCP** checkbox. is selected.
4. Click **OK** to save your changes.

Upgrading Windows after TeleVantage is installed_____

Important: After performing either of the procedures described in this section, review the rest of the topics in this Appendix to secure your TeleVantage Server or workstation PC.

Upgrading the TeleVantage Server to Windows XP SP2/Windows Server 2003 SP1

Perform the steps in this section if you installed TeleVantage on a Server running another version of Windows, and have subsequently upgraded to Windows XP SP2/Windows Server 2003 SP1 on the Server.

In either of these cases, do the following:

1. Run the TeleVantage Service Account Utility as described in Appendix F.
2. Restart the TeleVantage Server if you are prompted to do so.

Upgrading a workstation PC to Windows XP SP2/Windows Server 2003 SP1

Perform the steps in this section if you installed any of the TeleVantage workstation applications on a PC running Windows 98 or ME and have subsequently upgraded to Windows XP SP2/Windows Server 2003 SP1 on that PC. Note that these steps are not required if you upgraded to Windows XP SP2 from Windows NT, Windows 2000, or Windows XP (base release or SP1.)

To repair the workstation applications

1. From the Start menu, choose **Settings > Control Panel > Add/Remove Programs**.
2. Click **TeleVantage workstation applications**.
3. Click **Change**. When the TeleVantage Workstation Setup starts, follow the on-screen instructions.
4. In the Program Maintenance screen, click **Repair**, and then click **Next** to continue.
5. In the Ready to Repair screen, click **Install**.

EXTENDING TELEVANTAGE

Versatility is what makes TeleVantage so powerful, and that versatility is enhanced even further by the ability to integrate other applications into the TeleVantage Server. You can extend a TeleVantage system in the following ways:

- **In-band signaling applications.** Software designed to interact with PBX or Centrex systems can be configured to work with TeleVantage, providing custom IVR or call-handling functions (fax back, touch tone data retrieval, and so on).
- **TAPI applications.** TAPI-compatible phone dialers and contact managers such as Act!, GoldMine, FrontOffice 2000, and Microsoft Outlook can be integrated into TeleVantage through the TeleVantage single-line or Multi-line TAPI Service Provider.
- **Third-party telephony devices.** Devices such as fax servers and voice mail systems can be integrated into the TeleVantage Server.
- **Custom software.** If you have a requirement that cannot be met by one of the many off-the-shelf applications available from third-party vendors, programmers can use the TeleVantage Software Development Kit (SDK) to integrate custom-built software with your TeleVantage system.

See the following topics:

- **Extending TeleVantage with off-the-shelf applications.** See page G-2.
- **Extending TeleVantage with third-party devices.** See G-3.
- **Using an overhead loudspeaker with TeleVantage.** See G-7.

For an overview of what programmers can accomplish using the TeleVantage SDK, see:

- **In-band signaling applications.** See page G-2.
 - **TAPI applications.** See page G-2.
 - **Installing the TeleVantage SDK.** See page G-8.
 - **The TeleVantage SDK Application Programming Interfaces.** See page G-8.
 - **The Client API.** See page G-9.
 - **The Add-in API.** See page G-9.
 - **The IVR Plug-in API.** See page G-9.
 - **The Device Status API.** See page G-12.
-

Extending TeleVantage with off-the-shelf applications

Many off-the-shelf applications produced by third-party vendors can be integrated into the TeleVantage Server without any custom programming. These applications are integrated in one of the following ways:

- In-band signaling applications can be configured to work with most Centrex and PBX systems, including TeleVantage.
- TAPI applications can use the TeleVantage single-line or Multi-line TAPI Service Provider to communicate with the Server.

In-band signaling applications

A human caller can send commands to any PBX, including TeleVantage, by generating a *flash hook command* by quickly pressing and releasing the hang-up button (or hook) on a telephone handset cradle. The flash hook command signals the PBX that special instructions will follow, such as placing a call on hold or transferring a call to another extension. For example, a TeleVantage user can generate a flash and then press 1 to transfer a call.

This method of sending instructions is called in-band signaling. Many telephony applications use this same method, communicating with PBX or Centrex systems through flash hook commands.

Most PBXs use their own proprietary sets of flash hook commands. An application that uses in-band signaling will usually provide you with a way to configure it for a specific set of flash hook commands, such as those used by TeleVantage. For example, **&3** (a flash followed by a 3) is the flash hook command that TeleVantage uses to disconnect from a call, so you can configure the in-band signaling application to use **&3** as its disconnect command. For a complete list of the TeleVantage telephone commands, see the “Telephone Commands Quick Reference” in *Using TeleVantage*.

TAPI applications

TAPI applications can communicate with the Server through the TeleVantage TAPI Service Provider (TSP). The TSP can be installed on the TeleVantage Server and on any workstation networked to the Server. When it is installed, users can use TAPI-enabled phone dialers, contact managers, and similar applications. No modem is required, and ViewPoint does not need to be installed on the user’s computer.

The TSP runs in the background, establishing a connection between the TAPI application and the TeleVantage Server. Whenever a call is transferred to the station being monitored by the TSP, any TAPI-compatible application running on the same computer is notified of the call. The application can then perform functions such as getting Caller ID or DID, transferring the call, putting the call on hold, parking the call, or hanging up. TAPI applications can also place new calls.

While any TAPI-compatible application should work with TeleVantage, the contact managers listed in *Installing TeleVantage* are actively supported.

For detailed instructions on how to install the TSP and use it with the supported contact managers, see *Installing TeleVantage*. If you are writing a TAPI-compatible application, see the online *TeleVantage Developer's Guide (TVSDK.PDF)* for a description of the TAPI features that the TSP supports. (The developer's guide is installed with the SDK and is in the **manuals** directory of the Master CD).

Automatic reconnect to Server

The TSP validates the connection to the Server every 10 minutes by default. If the connection is lost, the TSP tries to reconnect. You can specify the validation interval in minutes by editing the following registry key:

HKLM\Software\Vertical\Client\TSP\ServerPingInterval

See "ServerPingInterval" on page J-13.

Extending TeleVantage with third-party devices

Many telephony devices produced by third-party vendors, such as fax servers or voice mail systems, can be integrated into the TeleVantage Server. This option is only available for devices connected to analog station boards or SIP FXS gateways.

To use a third-party device with TeleVantage, attach the device to a TeleVantage station and configure it using the tabs in the User dialog box.

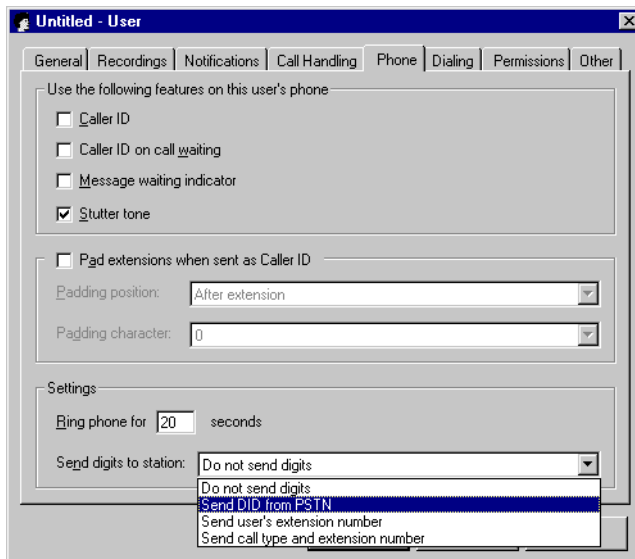
When you integrate a third-party device, you may need to indicate how to send DID, or extension numbers, to the station as touch tone digits (DTMF). Consult the documentation for your third-party device for more information about the kind of DTMF information that is required.

Note: Some third-party devices require a delay before DTMF digits are sent to the device. To specify this delay, change the SendDigitsToStationDelay registry setting (see "Modifying other supported TeleVantage settings" on page J-36).

To send DID information to a device as DTMF, on the Phone tab select one of the following methods from the **Send digits to station** drop-down list:

- **Do not send digits.** If you are not integrating a third-party device, accept the default method. No DTMF digits are sent.
- **Send DID from PSTN.** Send the DID number as DTMF digits from the trunk on which the call arrived.

- **Send user's extension number.** Send the extension number of the calling user as DTMF digits.
- **Send call type and extension number.** Send the call type and extension number as DTMF digits. This method is described in detail in the next section.



Note: If you choose any setting except the default **Do not send digits**, all call screening options are disabled for the station.

Sending call type and extension number to a device

The **Send call type and extension number** method sends DTMF digits that represent the call type and one or more extension numbers to help the third-party device determine where the call came from. Using this information, the third-party device can customize call handling for individual calls.

For example, a third-party voicemail system can use the extension number to preselect a specific user's voice mailbox. Using the call type, the system can then customize how the call is handled. When users dial in from their desks, they are connected directly to their voice mailboxes and offered a "retrieve voicemail" menu. For external callers, the voicemail system offers a "leave message" menu with the user's voice mailbox already selected.

The possible combinations of DTMF digits that are sent to the device are described in the following table.

Type of call	DTMF digits sent
Direct call to this extension from an external caller.	"1"
Direct call to this extension from an internal caller at another TeleVantage source extension.	"2{source extension}##"
Call from an external caller to a different target extension.	"5{target extension}##"
The call was sent to this extension via a routing list action because the target extension was busy or the call was not answered.	
Call from an internal caller at another source extension to a different target extension.	"6{target extension}#{source extension}##"
The call was sent to this extension via a routing list action because the target extension was busy or the call was not answered.	

The following example illustrates one way that TeleVantage can be configured to send DID digits to stations:

- Frank Smith is assigned extension 101. Miri Anatolia is assigned extension 102.
- A third-party voice mail system is attached to several TeleVantage stations. The system administrator creates a user for each device and assigns each one an extension, as in "voice mail Port 1" at extension 301, "voice mail Port 2" at extension 302, and so forth. When setting the **Send digits to station** option for each user, the system administrator selected **Send call type and extension number**. Finally, each voice mail port is added to a workgroup called voice mail, at extension 300 (for more on setting up workgroups, see "Creating a Workgroup" in Chapter 8 in *Administering TeleVantage*).
- Both Frank and Miri have a routing list that rings them first at their own extensions, and then sends calls to the workgroup voicemail at extension 300. Any calls for Frank and Miri that they do not pick up go to the first available voicemail port in the workgroup.

Note: In the previous example it is highly recommended that you use more than one voice mail device. A single device at extension 300, for example, can only handle one call at a time—either a user checking for voice messages or an external caller leaving a message. If a second call comes in to the device while it is busy, the second call goes to the final action of extension 300's routing list, which may be TeleVantage's voice mail, or any other final action that you configured.

Using the previous example again for illustration, the possible DTMF combinations that may be sent to one of the voicemail systems are described in the next table. In all cases, the call is handled by the first available voicemail device in the workgroup voicemail.

Type of call	DTMF digits sent
<p>An external caller calls voicemail directly at extension 300 in order to leave a message for a user.</p> <p>For a direct external call, the DTMF digits do not contain any information about the extension that was dialed. The caller follows the prompts offered by the device to identify the user who will receive the message.</p>	"1"
<p>Frank Smith at extension 101 calls voicemail directly at extension 300 in order to retrieve his voice messages.</p> <p>For a direct internal call, the DTMF digits identify Frank's extension. The voicemail device can send Frank directly to his own voice mailbox.</p>	"2101#"
<p>An external caller calls Miri Anatolia at extension 102. If there is no answer or a busy signal at extension 102, the call rings voicemail at extension 300.</p> <p>For an external call re-routed by a routing list, the DTMF digits contain Miri's extension. The voicemail device can send the caller directly to Miri's voice mailbox to leave a message for her.</p>	"5102#"
<p>Frank Smith at extension 101 calls Miri Anatolia at extension 102. If there is no answer or a busy signal at extension 102, the call rings voicemail at extension 300.</p> <p>For an internal call re-routed by a routing list, the DTMF digits contain Frank's and Miri's extensions. The voicemail device can send Frank directly to Miri's voice mailbox where he can leave her a message, and he may be identified as the sender.</p>	"6102#101#"

Using an overhead loudspeaker with TeleVantage

TeleVantage includes a special workaround for sites that place brief paging calls to an overhead loudspeaker system, for example, “Photo department, call on line 2.” Two problems with paging calls are commonly encountered:

- When overhead paging calls are very short, they can appear in the Call Log as Abandoned even if completed successfully. This is because the Dialogic board does not have time to perform its automatic Call Progress Analysis (CPA) to determine the result of the call.
- If a user puts an overhead paging call on hold, TeleVantage hold music is played over the loudspeaker.

To avoid these problems, create a Centrex/PBX Extension dialing service to handle all calls to the overhead paging system. When defining the dialing service, check **Prevent hold, transfer, and other call control**.

Checking the field has the following effects:

- It disables the Dialogic board’s CPA. All calls on the dialing service return a result of “Connected.” Note that this is true even if they were placed to a number that was busy or did never answered. This allows overhead paging systems to work better with the Call Log and reports.
- Users cannot perform any call handling command on the calls, such as Hold or Transfer. The telephone commands and ViewPoint’s Call Monitor commands are both disabled for the duration of the call. This prevents any unexpected audio from being broadcast over the loudspeaker system.

For full instructions on creating a Centrex/PBX dialing service, see “Adding a dialing service” in Chapter 9 in *Administering TeleVantage*.

The TeleVantage SDK

The TeleVantage SDK is a powerful set of software libraries that programmers can use to achieve the tightest possible integration between their applications and the TeleVantage Server. A programmer can use the SDK to integrate custom voice and call processing applications such as:

- Order processing systems with interactive voice response (IVR)
- Customer identification and screen pop applications
- Smart operators that transfer calls based on Caller ID or other information

- Automatic customer support call handling
- Custom applications that monitor the status of TeleVantage devices
- Custom menus and functions to extend ViewPoint

For complete information about the SDK, see *TeleVantage Developer's Guide*.

Applications that use the TeleVantage SDK can be created by programmers who have experience with a Windows programming platform such as C#, VB .NET, Visual Basic 6, Visual C++, or Delphi. Vertical maintains a list of consultants qualified to develop applications using the TeleVantage SDK.

Most custom applications can use TAPI or in-band signaling (as described in “In-band signaling applications” on page G-2) to perform Caller ID and call control. Applications that need to perform interactive voice-processing tasks (collecting and interpreting touch tone digits, playing and recording voice files, generating spoken messages, and so on) require that you use the IVR Plug-in API (see “Developing IVR Plug-ins” on page G-10 for details).

Installing the TeleVantage SDK

The TeleVantage SDK consists of sample programs and Help files as well as the software libraries that programmers will use to integrate their applications with TeleVantage. You can print *TeleVantage Developer's Guide—TVSDK.PDF*—and provide it to programmers. The manual is also found in the **manuals** directory of the Master CD.

To install the TeleVantage SDK

1. Insert the Master CD. If the Master Setup does not start automatically, run **autorun.exe** from the root directory on the Master CD.
2. Click **TeleVantage SDK**.
3. Follow the on-screen instructions.

The TeleVantage SDK Application Programming Interfaces

The TeleVantage SDK consists of three APIs (Application Programming Interfaces) that can be incorporated into custom applications. Each API is a software library that the application can use to access specific functions and data within TeleVantage. The following APIs are provided:

- **The Client API.** Using the Client API, applications can perform any operation that ViewPoint can perform, including all call handling and interacting with the TeleVantage Server database.
- **The Add-In API.** Using the Add-in API, you can develop custom applications that extend TeleVantage ViewPoint with enhanced functionality.

- **The IVR Plug-in API.** Using the IVR Plug-in API, programmers can tightly integrate a custom application with the TeleVantage Server to perform complex call-handling or voice-processing tasks (order entry, customer service, e-mail readers, and so on). The application (called an IVR Plug-in) is a virtual extension on the TeleVantage Server. The IVR Plug-in can be dialed from a phone or auto attendant, called from an internet trunk, or have calls forwarded or transferred to it, just like a regular extension assigned to a user.
- **The Device Status API.** Using the Device Status API, an application can monitor the status of all devices on the TeleVantage Server. For example, it can monitor current users on the system, obtain the name of a user currently logged on at a station, or identify the trunk to which a station is connected. The application can generate custom reports concerning the calls handled by TeleVantage.

The remainder of this chapter provides an overview of each API. For more detailed information, see *TeleVantage Developer's Guide (tvsdk.pdf)*, which is available in the **Manuals** directory on the Master CD.

The Client API

The Client API is an extensive collection of the COM objects used to write TeleVantage ViewPoint. It contains objects that are typically used to interact with the TeleVantage Server database and the call-processing engine. Using the objects available in the Client API, your applications can use any function found in ViewPoint.

The Add-in API

The Add-in API lets you develop custom applications that extend TeleVantage ViewPoint with enhanced functionality. Once you load these applications into ViewPoint, they can provide new menus, tool bar options, and automatic processing of calls and other data. The Add-in API also exposes a reference to the Client API, so an Add-in can easily manage and change data for the currently logged-in ViewPoint user.

The IVR Plug-in API

The IVR Plug-in API enables a custom application to function as a virtual extension on the TeleVantage Server. The application (called an IVR Plug-in) can act just as if it were using a regular extension assigned to a user. IVR Plug-ins run on the TeleVantage Server and are assigned an extension in the TeleVantage Administrator's IVR Plug-in view. Programmers use the IVR Plug-in API to get notification of new calls from the TeleVantage Server, retrieve Caller ID, DID, or other call data, and then optionally perform any voice processing (get digits, play or record greetings, perform database lookups, and so forth) by using the Plug-in API's built-in voice processing commands to play files, get digits, play tones, etc. After an IVR Plug-in finishes processing the call, it can hang up or transfer the call back to any TeleVantage extension, auto attendant, voice mail box, or even another IVR Plug-in. IVR Plug-ins can also make outbound calls, which can be useful for predictive dialing applications, or internal calls to other extensions.

The IVR Plug-in API is exposed to your applications through a TeleVantage software component. Sample applications are provided to illustrate how the IVR Plug-in API is used.

- **TVIVRLib type library.** This software component exposes the IVR Plug-in API so your applications can use it to process calls. The library is contained in **tvivr.tlb**, which is located in the **\Program Files\Common Files\Artisoft\TeleVantage** directory when you install the TeleVantage Server or install the TeleVantage SDK.

Several sample IVR Plug-ins written in Visual Basic 6, VB.NET and C# are installed with the TeleVantage SDK. The samples are provided in two versions: PlugInMedia samples that use the Plug-in API's built-in voice processing capabilities and CallSuite samples that require Dialogic's Call Suite for voice processing. By default, all samples are located in either the **\Program Files\TeleVantage SDK\PluInMedia** or **\Program Files\TeleVantage SDK\PluInMedia** directories. You must have Visual Basic 6.0 installed to use the sample programs as is, or modify them to meet your needs. The following samples are provided:

- **First.** This small IVR Plug-in demonstrates the most basic layout and design of an IVR Plug-in for a telephony server. It answers a call, plays a file, and then returns the caller to the active routing list.
- **CustID.** This IVR Plug-in demonstrates how to transfer customers to different agents automatically, based on the customer's area code obtained from their caller ID or their customer record. It also includes a CustomerID database manager to maintain the Customer and Agent database tables accessed by the CustomerID IVR Plug-in. The program can be used to customize the customer and agent data for your location.
- **OutBound.** This sample includes two IVR Plug-ins (PlaceCall and ReceiveCall) that demonstrate how an IVR Plug-in (PlaceCall) can place outbound calls that are handled by the ReceiveCall Plug-in. It then plays a voice prompt, and then transfer the calls to a TeleVantage user.
- **OrderStatus.** This IVR Plug-in answers calls, prompts the caller for their 5 digit order number, searches a Orders database for a matching record and then reads back the order status, e.g. *"Your order number [12345] was shipped on [December 31, 2002] and totalled [\$123.56]"*

Developing IVR Plug-ins

The TeleVantage SDK allows a programmer to integrate an application with the TeleVantage Server, including the ability to perform tasks such as dialing a phone number, interpreting touch tone digits, playing or recording voice files, or generating spoken messages. It also allows you to use telephony toolkits such as CallSuite to perform actions such as text-to-speech synthesis, voice recognition, accurate call progress analysis and faxing (which the IVR Plug-in API does not perform).

Telephony toolkits can be used to build applications such as:

- Order entry systems
- Benefits enrollment hotlines
- Real estate fax lines
- voicemail and paging systems
- Product literature fax-on-demand systems
- Movie rating and information lines
- Talking classifieds
- Predictive dialers
- Golf tee reservation systems
- Ski condition hotlines

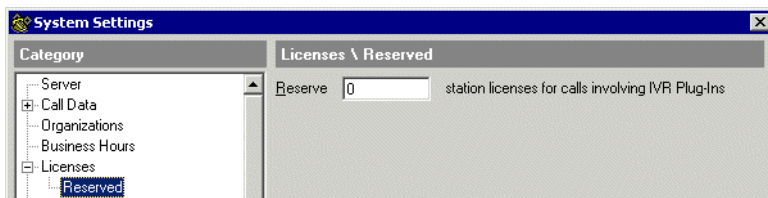
IVR Plug-in licensing and reserved station licenses

IVR Plug-ins are licensed at runtime and count against your station licenses. Each separate call handled by an IVR Plug-in consumes a station license for the duration of that call. For example, the TeleVantage Conference Manager (a Vertical TeleVantage Add-on application that is an IVR Plug-in) sometimes needs to place 5 outbound calls at once, meaning that it will consume 5 station licenses. If your system has 16 station licenses, and 15 are assigned to user's stations, you have only one free license for all IVR Plug-ins to use, and the Conference Manager would fail when it attempts to place 5 outbound calls.

You can reserve a specified number of station licenses for use by IVR Plug-ins to make sure that they have the licenses they need. Reserved station licenses cannot be used for users. If an administrator tries to assign a station to a new user, and the only free station licenses are the reserved ones, the administrator receives a message and is unable to assign the station. To assign the station, the administrator must either purchase an additional station license or reduce the number of reserved licenses.

To reserve station licenses for IVR Plug-ins

1. In the Administrator, choose **Tools > System Settings**. The System Settings dialog box opens.
2. Click the Licenses \ Reserved tab.



3. Enter the number of station licenses you want to reserve in **Reserve __ station licenses for calls involving IVR Plug-ins.**
4. Click **OK**.

Note: If you use Callsuite, additional Callsuite licenses will apply. See Callsuite's documentation for more information.

The Device Status API

The Device Status API provides functions that allow an application to monitor the status of all devices (stations and trunks) on a TeleVantage Server. The application can obtain the device name, number, hook state, current activity, and extensions for each device on the system. Each extension can be examined for the extension number, the user's name, and whether the extension is in a Do Not Disturb personal status. Using these functions, the application could:

- Monitor current users on the system and maintain a call log in a format customized for your special needs.
- Obtain a current list of users permanently assigned to a station.
- Obtain the name of a user currently logged in at a station.
- Identify the trunk to which a station is connected.

All Device Status information is read-only. The API can be used in combination with the IVR Plug-in API to provide IVR applications with device information.

The Device Status sample program

The Device Status sample program is a Visual Basic project for a simple device monitor that displays a constantly updated list of status reports on each device in the system. Programmers can use this sample program as a starting point for their own applications, expanding and customizing it as desired. It requires no hardware or software beyond what is already required for the TeleVantage Server and Visual Basic.

TROUBLESHOOTING VoIP

Fine-tuning your Internet span connection

In the TeleVantage Administrator, the SIP and H.323 Span dialog boxes include a Tuning tab where you can change VoIP resource parameters. Any changes you make take effect after the current call ends.

To change a VoIP parameter

1. In the Trunks view, double-click the H.323 or SIP span to open its dialog box, and then click the Tuning tab.

SIP Span 1

General | Codecs | NAT / Firewall | Inbound Authentication | Inbound Request Handling | **Tuning** | Trunks

Parameter	Value
100rel	Supported
CallingDomain	
ChallengeFrom	
ChallengeFromUri	
ChallengeUserAgent	
ContactHost	
Disable100ToUA	
DisableEarlyMedia	No
DisableObiToUA	
DisableRtpReinviteToUA	(sipura)((polycom)
DtmfIgnoredByUA	randstream BT)((eyeBeam)((Polycom)
Enable484ToUA	
FlashWantedByUA	
InviteTimeout	180

Parameter description:
Specifies whether outbound INVITE requests will contain header field Supported: 100rel. Set it to "Not supported" if you encounter interoperability problems on outbound calls, which may be caused by reliable provisional responses.

Import... Export... Restore Defaults

OK Cancel Help

2. Click in the **Value** column of the parameter that you want to change and select a new value from the drop-down list. A description of each parameter is displayed below it.
3. Click **OK** to save your changes or click **Restore defaults** to restore the board defaults and cancel any changes.

You can also click **Export** to save your Tuning tab settings to an .XML file, or **Import** to import a previously saved file.

Setting the Layer 3 QoS TOS Octet for higher VoIP quality

VoIP traffic on the Internet is flagged with a special byte, called the Layer 3 Quality of Service (QoS) Type of Service (TOS) Octet, that gives it higher priority over other traffic as it is routed to its destination. Not all routers on the Internet recognize the Layer 3 QoS TOS Octet, but those that do (DiffServe routers) prioritize the traffic according to the byte's value, helping to maintain high quality of service for VoIP traffic.

By default, TeleVantage Internet spans (SIP and H.323) set a value of **184** (decimal) for the TOS Octet, which maps to IP Precedence 5 (Express Forward) and DiffServe 46 (RFC 2598 Expedited Forwarding.)

You can modify this value via the parameter **Layer 3 QoS TOS Octet** on the Tuning tab, which will adjust the quality of service on outbound VoIP traffic from TeleVantage. Changes to **Layer 3 QoS TOS Octet** take place immediately; no restart of the span or Server is needed.

Notes

- To adjust the TOS Octet on incoming VoIP traffic to TeleVantage, you must adjust it at the end-point sending the traffic, for example, the IP phone.
- Not all Dialogic boards that provide IP telephony resources support the TOS Octet. See *Installing Dialogic Telephony Components* for details.

To enter a value for the Layer 3 QoS TOS Octet

1. Determine the 8-digit binary number that you want. The first three bits (Bits 0-2) correspond to Precedence and are set as follows:
 - 111 - Network Control
 - 110 - Internetwork Control
 - 101 - CRITIC/ECP
 - 100 - Flash Override
 - 011 - Flash
 - 010 - Immediate
 - 001 - Priority
 - 000 - Routine

The next five bits are set as follows:

- Bit 3 - Delay. (0 = Normal Delay, 1 = Low Delay)
- Bit 4 - Throughput. (0 = Normal Throughput, 1 = High Throughput)
- Bit 5 - Reliability. (0 = Normal Reliability, 1 = High Reliability)
- Bit 6 - Cost. (0 = Ignore Cost for Routing, 1 = Minimize Cost)
- Bit 7 - Ignored. (Reserved for Future Use)

2. Take the 8-digit binary number and translate it to standard decimal. You can do so using the Windows Calculator (Start > Programs > Accessories > Calculator). Click **View > Scientific**, click **Bin**, enter the 8-digit binary number, and click **Dec**. The number appears in standard decimal format.
3. In the Internet span's Tuning tab, click the **Value** column for the **Layer 3 QoS TOS Octet** parameter, and enter the standard decimal number.
4. Click **OK**.

For more information on the Layer 3 QoS TOS Octet, refer to the following documents:

<http://www.ietf.org/rfc/rfc1349.txt>

<http://www.ietf.org/rfc/rfc2474.txt>

Troubleshooting problems with SIP or H.323

This section provides information about the following:

- Analyzing audio problems with SIP or H.323. See page H-3.
- Troubleshooting general SIP problems. See page H-3.
- Troubleshooting problems with SIP devices such as SIP phones and external SIP stations. See page H-5.
- Troubleshooting problems with SIP PSTN gateways or SIP Carriers. See page H-7.

Analyzing audio problems with SIP or H.323

Use the network capture feature on TeleVantage Server (**Tools > System Settings > Network Capture**) and check **Capture server network traffic** and **Include VOIP audio packets**.

Note: Only enable network capture while troubleshooting as this feature can consume TeleVantage Server resources.

To analyze the output of the Network Capture, we recommend using Ethereal which can be obtained from <http://www.ethereal.com>.

Troubleshooting general SIP problems

If you are providing telephony resources via Dialogic telephony boards, check the Windows Server Event Log for either of the following events:

- An IP telephony board has failed
- An IP address conflict between an IP telephony board and another device has been detected.

If you are using the Tftpd32 TFTP Server (included with TeleVantage) to download updates to Aastra SIP phones' firmware and configuration files, your Technical Support representative may ask you to turn on Tftpd32 TFTP Server logging via the Windows registry setting **TftpLogFile**. To do so, see page J-16. For more about the Tftpd32 TFTP Server, see Chapter 17.

I cannot get SIP calls to work.

Have you followed the step by step instructions in Chapter 14 of *Administering TeleVantage*? This chapter contains the majority of the information you need to know in order to get SIP calls to work.

Is your Dialogic board configured with a host-based VoIP stack?

You can not use SIP with an embedded H.323 stack, so be sure that your IP boards as configured in the DCM are using a host-based VoIP stack. Some boards do not support host-based VoIP stack—to verify if your board does, see the Trunk Resources by Board table in Appendix E in *Installing Dialogic Telephony Components*.

I am using SIP and H.323 and my IP Spans are configured properly but I can't place SIP calls.

Be sure to create your H.323 Span first so your H.323 trunks have lower numbers than your SIP trunks (in other words, the H.323 trunks are listed above the SIP trunks in the Device Monitor.) Without this order, the configuration will not work properly. To resolve this problem, edit your H.323 and SIP spans in the TeleVantage Administrator and change each span's starting trunk number so the SIP and H.323 trunks are in the proper order. Then restart the TeleVantage Server.

I changed my SIP span's number of trunks. Now the SIP trunks do not seem to be working.

You must restart the TeleVantage Server after changing the numbering of SIP or H.323 trunks in a span.

Do I have to restart a SIP span after I changed any of its settings?

Most settings take effect on the next call—you will be prompted to restart the span for the few settings that do not take effect right away.

Important: You must restart the TeleVantage Server after you create or delete a SIP span, or change the span's IP address, port, or number of trunks in the span.

I have created a SIP span and restarted the Server, but all of my SIP trunks show up in the Device Monitor with a status of “No loop current.”

Check TeleVantage Windows event log. The problem is likely to have been reported there.

I have created a SIP span and restarted the Server, but all of my SIP trunks show up in the Device Monitor with a red “Idle” status.

Check TeleVantage Windows event log. The problem is likely to have been reported there.

Troubleshooting problems with SIP devices such as SIP phones and external SIP stations

Have you followed the step by step instructions in Chapter 14 of *Administering TeleVantage*? This chapter contains the majority of the information you need to know in order to get SIP calls to work.

My SIP phone or device is not ringing or cannot make calls.

Check the TeleVantage Administrator's SIP Registration Bindings view to see if your SIP device is listed. If it is not listed, confirm that the SIP device's configuration (Proxy IP, domain, or Server address) refers to the IP address of your TeleVantage Server's SIP span and that the username (or userid) matches the corresponding userinfo setting of the TeleVantage user's external station.

My SIP phone was working, but is no longer able to dial numbers or receive calls

First, unplug the phone and then plug it back in again. If you still have a problem, check to be sure that the phone's configuration matches the settings for the SIP span and the User's external station settings, as described in Chapter 14 in *Administering TeleVantage*.

The Device Monitor shows my SIP external station's status as "Out of Service."

This means that there is no SIP registration in the Registration Binding Table that matches the configuration of that external station. This problem can occur for any of the following reasons:

- The SIP phone is not connected to the network.
- The SIP phone failed to register due to authentication failure.
- The phone configuration doesn't match SIP external station configuration.

See "My SIP phone or device is not ringing or cannot make calls." on page H-5 for more information.

How do I find out the firmware versions of the device currently being used with TeleVantage?

In the TeleVantage Administrator, select the SIP Registration Bindings view and look at the User-Agent column on the far right. This column contains this information as reported by the device.

When I make a call, I get the TeleVantage auto attendant.

This usually means that the phone is not being recognized as an external SIP station, and is being handled as an unknown SIP trunk call.

First, check to make sure your device is listed in the Registration Binding Table (see “My SIP phone or device is not ringing or cannot make calls.” on page H-5 for more information.)

- If your device is not listed in the Registration Binding Table, verify the IP address specified in the Proxy/Server/domain address fields (these terms can be different depending on what device is in use) matches the SIP Span address.
- If your device is listed in the Registration Binding Table, verify that the username (or User ID, depending on device) in the device's configuration correctly matches the userinfo field in the User's external station settings as shown in the TeleVantage Administrator.

Next, verify that the authentication credentials match the device's settings.

Lastly, confirm that the external station is correctly identified by pressing *0 on the phone to verify its station ID and extension.

The phone is reporting that the call failed or is showing an “Unauthorized” message.

See “When I make a call, I get the TeleVantage auto attendant.” on page H-6 regarding verifying authentication credentials.

When I attempt to make an outbound call to an external number, I do not receive dialtone after dialing a feature or external dialing access code (for example, 9), or there is a long delay before I hear ringback after dialing an extension.

Most SIP devices generate local dialtone when going off hook, and you must press a termination key (usually the # button or a “Send” key) in order for the device to send the dial string to any SIP Server, including TeleVantage.

My SIP phone has a Voicemail Access button, but it does not connect to my voice mail.

Verify that the phone's configuration for this button matches the dial string as configured in the TeleVantage Administrator (**Tools > System Settings > Internal Dialing > Voice mail Access.**)

How can I verify that I am receiving audio in both directions from a SIP external station?

Press *18 from any external IP station (SIP or H323) to verify two-way audio and check for latency.

When I am on a call, and I get a 2nd call, my phone's second line does not ring, I just hear the call waiting beep.

At this time, multiple line appearances on SIP stations are not supported.

I do not see Caller ID while I am on a call (CIDCW) on my SIP phone.

At this time, CIDCW is not supported.

I am using a SIP device from a home/remote office (behind a local NAT or router) that is outside of my corporate LAN. How do I configure the phone?

See Chapter 14 in *Administering TeleVantage* for information on how to configure a SIP end point behind a NAT or firewall.

Using my SIP device, I hear audio in only one direction (1-way audio.)

Check to see if the phone or TeleVantage Server is behind a NAT/firewall. If so, see Chapter 14 in *Administering TeleVantage* for information on how to configure a SIP end point behind a NAT or firewall.

TeleVantage is not detecting DTMF digits that I press on my SIP device.

Verify that the SIP phone and TeleVantage SIP span are both configured to send digits via RFC2833 and not in-band or SIP INFO.

Note: If you are using a DMIP241-1T1-P10 board, then you must set the phone to send DTMF digits "In Band". You can leave DTMF transmission mode of SIP span set to RFC2833, as TeleVantage will use "in-band" with these boards.

Troubleshooting problems with SIP PSTN gateways or SIP Carriers

I am receiving a busy signal when trying to make outbound calls to a SIP provider.

Check the following:

1. You created a TeleVantage SIP span.
2. You created a TeleVantage SIP Server for the SIP provider as specified in Chapter 14 in *Administering TeleVantage*.
3. You configured your TeleVantage SIP account correctly.

I configured a PSTN gateway or SIP carrier as a SIP Server, and configured a user with DID, but when I call the DID number the call is sent to the TeleVantage auto attendant and not to the DID user.

By looking at the TeleVantage Call Log's **From** field, verify that TeleVantage is displaying calls from the PSTN gateway with PSTN numbers, instead of SIP URI (for example, (sip:6175551212@123.45.67.89).)

If you see SIP URIs in the **From** field, you can resolve this problem by using the TeleVantage Administrator to open your **SIP Server > Inbound** tab and be sure that the fields **Identify inbound calls using**, **Server location**, and **Handle calls from this server as Telephone calls** are checked:

Also, verify that if the TeleVantage SIP span requires authentication, the gateway's authentication credentials match. Otherwise, inbound calls will be handled as unknown SIP callers and will be sent to the TeleVantage auto attendant.

Troubleshooting an H.323 IP phone

If you are having difficulty configuring your IP phone with TeleVantage, review the following steps carefully.

If you are providing telephony resources via Dialogic telephony boards, check the Windows Server Event Log for either of the following events:

- An IP telephony board has failed
- An IP address conflict between an IP telephony board and another device has been detected.

If your IP telephony boards are functioning, check to see if TeleVantage can place a call to the IP phone (either by dialing the IP address directly from a station phone, or by configuring a user's external station address to the IP phone's IP address and dialing the user's extension).

If you cannot place a call to the IP phone:

- **Ping the phone.** Make sure you can ping the phone from a machine on the network.
- **Check the IP address and Subnet Mask.** Make sure the IP address and Subnet Mask information in the IP phone setup screens are correct.
- **Use a valid IP trunk address.** Make sure the IP phone references a legitimate TeleVantage IP trunk. For the Uniden phone, check the IP Proxy address using the web browser admin. For the Polycom phone, check the appropriate **<ServerIP>.cfg** file. Remember that most Dialogic Internet telephony boards have their own NIC interfaces, and therefore their own IP addresses, different from that of the NIC in the TeleVantage Server PC. The DM/IP241-1T1-P100 and DM/IP301-1E1-P100 are examples of boards with an onboard NIC; this is signified by the "1" (not "0") in the last digit of the model number. The DISI0408LSAR2 board does not have an onboard NIC and uses the PC's NIC.

If you are using a board with its own NIC interface, use the IP address of the board, not of the TeleVantage Server itself.

- **Ensure that a supported codec and frame size are in use.** Only G.711 is supported with the Uniden IP phone. Other codecs have received limited testing. Make sure the frame size is set to the same value in TeleVantage and the Uniden phone. The Uniden phone defaults to 20 ms frames and TeleVantage defaults to 20ms or 30 ms. Polycom phones support G.711 and G.723 codecs when used with TeleVantage and IP phones.
- **Confirm that there is an available IP trunk.** If IP phone users share IP trunks on the TeleVantage Server, there may be no IP trunks available at the time they are trying to make a call. This can be confirmed by observing the state of the IP trunks in the TeleVantage Device Monitor.
- **Check the network.** You may be experiencing a network problem. Make sure you can ping the IP address of the IP telephony board or TeleVantage Server.
- **Check the H.323 stack.** If users see “Disconnected” in the LCD screen of the IP phone, there may be a problem with the IP telephony board or its H.323 stack. Check the Windows server event log to verify errors. The IP telephony board or TeleVantage Server may need to be restarted.

If you are using the Tftpd32 TFTP Server (included with TeleVantage) to download updates to Polycom or Uniden H.323 phones’ firmware and configuration files, your Technical Support representative may ask you to turn on Tftpd32 TFTP Server logging via the Windows registry setting **TftpLogFile**. To do so, see page J-16. For more about the Tftpd32 TFTP Server, see Chapter 17.

Testing audio delay from an IP phone with *18

You can press ***18** from dial tone at an IP phone to test the phone’s connection to the TeleVantage Server. After you press ***18**, the system echoes back anything you say, enabling you to judge any delay occurring between the phone and TeleVantage. To end the test, hang up or press **#**.

This test can help you judge whether poor audio quality is occurring between the phone and TeleVantage, or elsewhere in the Internet connection.

PROTECTING YOUR PHONE SYSTEM AGAINST TOLL FRAUD

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About toll fraud

Businesses using any phone system, not just TeleVantage, are vulnerable to loss of money from unauthorized people “hacking” into their phone system. Hackers make hundreds of outbound long distance or international calls that cost businesses around the world millions of dollars every year. TeleVantage contains several features and options that can protect your system against toll fraud.

Typical toll fraud strategies

While hackers committing toll fraud try a variety of techniques to gain access to a system, it is important to note that 99% of the time access is gained through insecure (easy-to-guess) passwords. The Administrator's System Settings provide several options for enforcing harder-to-guess passwords. See “Enforcing strong password security” in Chapter 3 in *Administering TeleVantage*.

The following are the most common methods of attempted toll fraud:

- Calling the main auto attendant, pressing #, logging in as the Administrator, pressing # for dial tone and placing outbound calls.
- Attempting to log on at every extension (101, 102, etc.) until an extension with an easy password is found. Once found, the hacker will change call forwarding to the external number they want to dial (for example, an international number or the number of another hacked PBX), and then make calls to the external number as needed. By calling through multiple hacked PBXs, Caller ID and traces will be unable to track down the hacker's identity.
- Calling random users and telling them they are a representative from the phone company and need their voice mailbox password to track down a problem with the phone system. Users should be told to never give out their passwords, and if they have reason to believe someone else has it, to change it immediately to something secure.

Identifying toll fraud

The following methods will help you tell whether your system has been targeted by toll fraud hackers:

- Check your Administrator's call log daily for multiple logon attempts. A failed logon attempt will show as "logon - Abandoned". A successful fraudulent logon will typically show many long distance or international calls placed afterwards from that extension.

Note: You can have TeleVantage automatically hang up on callers and *lock out* accounts after multiple failed logon attempts. See “Enforcing strong password security” in Chapter 3 in *Administering TeleVantage*.

- Check your phone bills carefully for international numbers or long distance numbers you do not recognize.
- Watch your Device Monitor for sudden bursts where every line is busy with people trying to log on.

Protecting your system against toll fraud

The following are a variety of ways to secure your phone system. While practicing all of these strategies will keep your phone system very secure, by far the most important strategy is to just improve the security of passwords.

Password security

The Security tab in System Settings (see “Enforcing strong password security” in Chapter 3 in *Administering TeleVantage*) gives you several options for making user passwords more secure. For maximum security you should choose all of the following options:

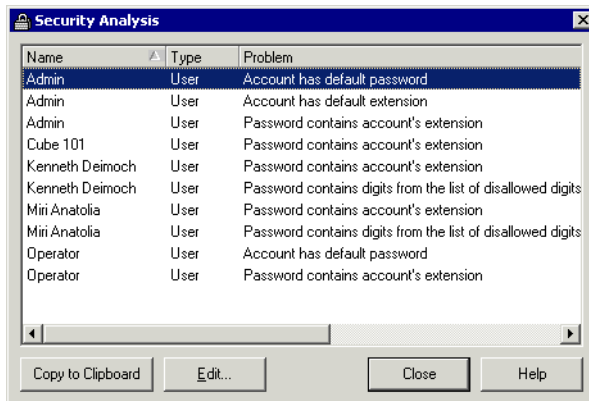
- Set a minimum password length. Passwords should be at least 5 digits long, preferably 7.
- Prevent passwords from including the user’s extension.
- Prevent passwords from including easy-to-guess elements like same-digit strings (111) or consecutive-digit strings (123).
- Regularly force password change.

Changing the Admin and Operator passwords

TeleVantage’s two default users, the Admin and Operator, have easy-to-guess passwords. Immediately after installing TeleVantage, you should change the passwords on those accounts to something more secure, by editing those users in the Users view. Reminder messages in the Administrator will warn you if you leave the extensions as is.

Identifying users with security-risk passwords

The Administrator has a built-in Security Analysis report that analyzes your system for potential security risks. To run the Security Analysis report, choose **Tools > Analyze Security**. The report appears on-screen.



The screenshot shows a window titled "Security Analysis" with a table of users and their password issues. The table has three columns: Name, Type, and Problem. The data is as follows:

Name	Type	Problem
Admin	User	Account has default password
Admin	User	Account has default extension
Admin	User	Password contains account's extension
Cube 101	User	Password contains account's extension
Kenneth Deimoch	User	Password contains account's extension
Kenneth Deimoch	User	Password contains digits from the list of disallowed digits
Miri Anatolia	User	Password contains account's extension
Miri Anatolia	User	Password contains digits from the list of disallowed digits
Operator	User	Account has default password
Operator	User	Password contains account's extension

At the bottom of the window, there are four buttons: "Copy to Clipboard", "Edit...", "Close", and "Help".

Use the report to determine which users in your system have passwords that make your system vulnerable. If you have implemented the security options described in this section, few users should appear in the list. Those who do might have old passwords that have not yet been changed, either because they have not yet logged in and been forced to change their passwords, or because they are exempt from forced password change. Talk to those users about making their passwords more secure.

You can address your security problems directly from the dialog box by selecting an item and clicking **Edit**. The Edit dialog box for that item opens.

User permissions

Disallow security-risk permissions for all users except those individuals who really need them. You can change permissions for individual users by editing the user account (see “The Security \ Permissions tab” in Chapter 6 in *Administering TeleVantage*), or for many users at once by editing the User's Role (see “Managing roles in Chapter 6 in *Administering TeleVantage*.)

Security-risk permissions which should be disallowed are:

- Place external calls when logged on via a trunk (under the Standard permission group)
- Log on via trunk (Standard)
- Log on via IP trunk (Standard)
- Log on via station (Standard)
- Forward or route calls to external numbers (Standard)
- Return calls when logged on via a trunk (Standard)
- Select a specific trunk for outbound call (Administration)

Setting up dialing restrictions

A good way to prevent unauthorized outbound calling is to place restrictions on users' dialing permissions. You can change permissions for individual users by editing the user account (see “The Security \ Permissions tab” in Chapter 6 in *Administering TeleVantage*), or for many users at once by editing the User's Role (see “Managing roles” in Chapter 6 in *Administering TeleVantage*.)

Some dialing restrictions to consider:

- Disallow access to any number dialed during toll fraud. To find a list of numbers, search your call logs for frequent calls to international locations.
- Disallow dialing 011 and 00 to block all international calls (00 dials the international operator). To permit some international calls you can do the following:
 - Enable 011 for those individuals who are authorized to make international calls. Those individuals can then dial any country.
 - Enable country codes for those foreign countries that are appropriate for users to call. To do so, enable 011xxx where xxx is the desired country code.

The full list of country codes can be found in your phone book. The list is maintained by the ITU (International Telecommunication Union), a division of the United Nations. The ITU web site is <http://www.itu.int> and the most recently published list of country codes is available at http://www.itu.int/itudoc/itu-t/ob-lists/icc/e212_685.html (this list is valid as of June 2000, and some additional country codes have been assigned since then.)

- Disallow dialing sequences that call for-pay services like 1900 or 1976, 976, etc. For information on additional numbers that should be blocked, see this website:

<http://www.lincmad.com/telesleaze.html>

- Disallow dialing certain international North American area codes if desired, such as those in the Caribbean. For example, disallowing 1242 blocks calls to the Bahamas.

The full list of North American area codes can be found in your phone book or at the web site for the North American Numbering Plan Administration:

<http://www.nanpa.com>

For the numerical list of area codes, see:

http://docs.nanpa.com/cgi-bin/npa_reports/nanpa?function=list_npa_geo_number

Making account logon more secure

There are several ways to prevent hackers from even getting to the account logon choice of your auto attendant. Some methods make it difficult for your own users to use the system, so you need to judge how far you want to go to prevent toll fraud at the expense of phone system ease of use. Please note that these options do not make your system secure by themselves, as they only slow down hackers. The only way to do that is to make sure your user passwords are secure and change often.

Auto attendant security options include the following:

- In your main auto attendant, change the default "#" for user logon to something else. Ideally, give your remote users a phone number routed to a special auto attendant that permits remote logon, while your main auto attendant does not. For DID systems, where you can't control the specific trunk used on inbound calls, give your remote users a DID number instead that routes them to the special auto attendant.
- Do not permit logon in your main auto attendant that is assigned to every trunk. Instead, create a unique auto attendant on a different trunk each week that permits logon. Publish the trunk's phone number to your users as it changes.

Securing your phone system database

Toll fraud typically involves “hacking” over phone lines instead of data hacking. However, the TeleVantage database runs on a Windows server on your network and contains all permission settings and can be hacked at that level. It is always wise to keep your corporate network secure from unauthorized external access. This safeguards your database against tampering by network and computer hackers. Some ways to do this include:

- Use standard firewall technology to secure access to your network. If desired, allow access to specific protocols and ports, such as those for HTTP or H.323 (VoIP).
- For extra security, host the TeleVantage Web Services on a separate server from the TeleVantage Server and database.

Securing SIP stations

If your system uses SIP phones as external stations, hackers can gain entry to the system by sending a SIP message that duplicates the SIP URI of a SIP phone user, for example, `vwilliams@sip:www.Vertical.com`. Without protection, TeleVantage assumes the call is coming from the external station and automatically logs it in and provides internal dial tone, permitting the caller to place outbound calls through TeleVantage.

To protect against SIP fraud, you can do the following:

- Make sure that each SIP phone uses authentication credentials whenever it connects to TeleVantage. See “Authenticating SIP phone external stations” in Chapter 14 in *Administering TeleVantage* for instructions.
- If your system interacts with an external SIP server, such as a PSTN gateway or a SIP provider (IPSP), set up two SIP spans, one to handle SIP stations and the other to handle traffic from the external SIP server. See “Using more than one SIP span” in Chapter 14 in *Administering TeleVantage*.

Checking for current scams

Most telephone carriers maintain toll fraud web pages with current information. For example:

`http://www.att.com/fraud/`

`newscenter.verizon.com/kit/servicestandard/scams.vtml`

You can monitor these web sites for up-to-date information and potential remedies.

Responding to toll fraud attempts

If your phone system has been the target of toll fraud attempts, you can do the following:

- Report Caller ID numbers and called numbers of fraudulent calls to your long distance carrier. Sometimes carriers can block certain numbers from calling you.
- Report excessive toll fraud to your local FBI office. Note, however, that the FBI does not usually get involved with toll fraud unless losses are substantial.

You can also use the information from previous toll fraud attempts to make your system even more secure. For example, you can add any numbers being called during toll fraud to the list of numbers prevented with dialing permissions. If fraudulent calls have been made to a particular few countries that are not otherwise called, disallow dialing those country codes (011xxx).

Using Caller ID to prevent fraudulent calls

If you know the Caller ID from which fraudulent calls originate, you can prevent calls from those numbers. To do so:

1. Create a user called "Fraud Detector." Create it with a secure password, a station ID of 0, and use permissions to prevent it from making any external calls.
2. Log on to ViewPoint as the "Fraud Detector" user.
3. Create a routing list called "Normal." Delete the "Call me where I am" action. Change the final action to "Transfer to an extension" and select your main Auto Attendant. Uncheck the greeting from playing. Make this the default and active routing list.
4. Create a second routing list called "Fraud Call." Delete the "Call me where I am" action. Change the final action to "Hang up."
5. Create a contact named "Fraudulent person." Edit the phone numbers of the "Fraudulent person" contact and add any numbers of known fraudulent callers.
6. Create a call rule so that when the contact "Fraudulent person" calls that they are handled by the "Fraud Call" routing list which hangs up on them.
7. Assign every trunk to call the Fraud Detector user, instead of your auto attendant.

Subsequent calls from the known fraudulent numbers will be automatically hung up on, and will appear in the Call Log as being from "Fraud Detector." Other calls will be handled as normal. As new fraudulent numbers are detected, you can associate the Caller ID with "Fraudulent person."

TELEVANTAGE CONFIGURATION SETTINGS

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About TeleVantage configuration settings

This appendix lists the TeleVantage configuration settings that store information that is rarely changed, or that cannot be changed using the Administrator.

There are two ways main sources of TeleVantage configuration settings:

- The TeleVantage Advanced Settings Editor. This TeleVantage application allows Administrators to edit settings that are stored in the TeleVantage database. See “Using the TeleVantage Advanced Settings Editor” on page J-34.
- The Windows registry. To edit the Windows registry, use **Regedit.exe** or **Regedt32.exe**. See the next section.

Note: In this chapter, all registry entries are shown as decimal, rather than hex, values. In RegEdit the default entry format is hex.

TeleVantage registry settings

The following sections cover the TeleVantage configuration settings stored in the Windows registry. TeleVantage registry settings are found in two places:

- On the TeleVantage Server computer. See this section.
- On the TeleVantage workstation computers. See “Registry settings on the TeleVantage workstation computers” on page J-10.

Note: In this chapter, **HKLM** is the abbreviation for **HKEY_LOCAL_MACHINE** and **HKCU** is the abbreviation for **HKEY_CURRENT_USER**.

Changing TeleVantage registry settings

For all registry settings listed in this appendix, TeleVantage uses an internal default value unless the PC's Windows registry contains a corresponding setting with a different value. To change the default value of a TeleVantage registry setting, you will likely need to add the setting, since most of the registry settings listed in this appendix are not present when TeleVantage is installed.

To change a TeleVantage registry setting in the Windows registry, do the following:

1. Click **Start > Run**.
2. In the Run dialog box, type **Regedit** or **Regedit32**.
3. Click **OK**. The Registry Editor opens.
4. Navigate to the folder that holds the registry setting you want to change.

5. If the registry setting exists, double-click it to edit it.
If the registry setting does not exist, right-click the folder where it should go and choose **New**, then select the type of setting to add (choose **DWORD** unless this appendix specifies otherwise.) Enter the name of the setting. Then double-click the setting to edit it.
6. Enter the desired value for the registry setting and click **OK**.
7. When you are done editing registry settings, close the Registry Editor, for example by choosing **Registry > Exit**.

The following tables show TeleVantage registry settings according to the registry keys under which they are found.

HKLM\Software\Artisoft\TeleVantage\

COMPANY

STRING value sent to incoming IP callers who are directed to an auto attendant or IVR Plug-in. Some terminals such as NetMeeting will be able to display this name in their user interface. Calls that go directly to users will use the user's name instead. Note that this value is written by the installer. This setting takes effect when **SendDisplayOnAnswerCall** (see page J-7) is non-zero. See also **Q931DefaultSourceName** on page J-7.

Default is **TeleVantage**.

HKLM\Software\Artisoft\System\

LOCKOUTRESETINTERVAL

DWORD value that sets the time frame in which multiple failed logon attempts must occur to result in a lockout (see "Enforcing strong password security" in Chapter 3 in *Administering TeleVantage*.) The value is in minutes and by default is set to **30**. Increasing the value means that lockout will be more likely, while decreasing the value means that lockout will be less likely. A value of **0** will result in lockout never occurring.

Default is **30** minutes.

6E23WK

DWORD specifying whether, with a queue set to automatically record calls, an incoming call that is transferred out of the queue continues to be recorded. Changes to this registry setting take effect the next time that the TeleVantage Server is started.

When set to **1** (the default), recording stops as soon as the call is transferred out of the queue.

When set to **0**, recording continues after the call is transferred out of the queue.

DbCacheInterval

DWORD value specifying the number of minutes between database cache refreshes.

Default is **5** minutes. Setting to **0** turns off cache refreshes.

DisableCallHistory

DWORD value specifying whether call history is enabled or disabled. When call history is enabled, call history events are logged for display in the Call History pane in the TeleVantage Administrator Device Monitor view and in ViewPoint's Call Monitor. For more about call history, see "Viewing a call's history" in Chapter 12 in *Administering TeleVantage*.

Default is **0** (call history is enabled.) If set to **1**, call history is disabled.

Changes to this setting take effect the next time that the TeleVantage Server starts.

DisableDevices

See "Disabling Dialogic devices" on page J-20 for details.

Default is **0**.

EnableIPLogin

DWORD value specifying whether or not to enable IP caller login.

Default is **1** (login is enabled.)

EmptySentItemsFolder

DWORD value specifying whether or not to purge the Sent box in a Lotus Notes-based e-mail system each time an e-mail notification includes an attached voice message. If you are not using an e-mail system based on Lotus Notes, you do not need to define this setting. For more information, see "Using Lotus Notes for e-mail notification" in *Installing TeleVantage*.

Default value is **0** (Sent box should not be purged.) A value of **1** indicates that the Sent box should be purged.

ExpWaitRingCycleLength

DWORD value specifying in milliseconds how much time is added to the expected wait time estimate for queues. Note that this time is added to each queue's calculation. To adjust an individual queue's expected wait time, see *TeleVantage Call Center Administrator's Guide*.

Default value is **6000** milliseconds (6 seconds.)

LogHours

DWORD value specifying the number of hours to log.

Unless this is set to **0**, TeleVantage may automatically increase NumLogs based on available disk space so that the logs are not overwritten for the specified number of hours.

LogHours default is **48**. Set to **0** and the Server will not adjust logging settings.

LogPath

STRING value specifying the subdirectory in which TeleVantage Server log files (**Tvlogxxx.TXT**) will be created. If this registry value does not exist, or points to an invalid directory, Server logging will be disabled.

Default path is: "" (empty string.)

MaxNonSilence

DWORD value specifying the maximum length of uninterrupted sound (in 10 ms units) that will be recorded before the recording is terminated.

Default is **0** (no timeout.)

MinDiskFreeSpace

DWORD value specifying the minimum amount of disk space (in megabytes) on the TeleVantage Server that must be available for Server logging and saving voice messages. If the minimum amount is not available, no logging will occur and no voice messages will be saved.

Default value is **100 MB**.

Note: This setting applies to Server logging only. To specify the minimum amount of disk space that must be available for TeleVantage workstation applications logging, see **FreeSpaceRequired** on page J-12.

MonitorInterval

DWORD value specifying the interval in minutes between TeleVantage Device Monitor checks for devices that are not responding.

Default is **1** minute.

MonitorLocPBE

DWORD value specifying how the ViewPoint status of hot-desking agents (agents logged into another user's phone) is updated after the agent logs out using the *00 command.

When set to **1**, the agent's ViewPoint status changes to on-hook when they log out using the *00 command.

When set to **0** (the default), the agent's ViewPoint status is not updated (it remains off-hook) when they log out using the *00 command.

MonitorRestart

DWORD value. If this value is non-zero, the system will attempt to restart a nonresponding device after the interval specified by **Monitortimeout** is exceeded. A non-zero setting can cause problems when a device is not responding, because it can result in slow database access.

Default is **0** (system will not attempt to restart the device.)

Monitortimeout

DWORD value in milliseconds. If a device has not responded for this length of time, TeleVantage checks the **MonitorRestart** setting to see if the device should be restarted, and adds the message "Device %1 is not responding" to the Windows Event Log.

Default is **300000** milliseconds (5 minutes.)

NumConcurrentIPGCOpens

DWORD value that specifies how many IP trunks TeleVantage opens at a time at Server startup.

Occasionally on Server startup, IP trunk status in the TeleVantage Device Monitor will flicker from Idle to No loop current to Pre-idle to Idle. If you experience flicker, you can reduce the value of this registry setting.

The default is **12**.

NumLogs

DWORD value specifying the number of TeleVantage Server log files (**Tvlogxxx.TXT**) kept before they are overwritten.

This key interacts with **LogHours** (see p. J-5) to determine how logs are kept. Each Server log file grows to a maximum of 4MB in size before a new log file is created. The Server keeps track of its logging rate and calculates whether the number of logs files specified here will contain enough data to meet the required number of hours set by LogHours. If not, TeleVantage automatically increases NumLogs so as to meet the required number of hours.

To prevent automatic increasing of **NumLogs**, set **LogHours** to **0**.

NumLogs is set to **100** by the Server installer on a fresh install. If this key is deleted, the default value is **1**. To disable logging, set to **0**.

PartyCustomDataMax

DWORD value specifying the maximum size allowed (in bytes) for custom data attached to each party. If ViewPoint attempts to set custom data for a party that exceeds this size, the attempt will be disallowed.

Default is **10000** bytes.

Q931DefaultSourceName

STRING value used when forwarding incoming PSTN calls without Caller ID to an Internet Address or Enterprise Gateway service. The IP telephony board drivers will substitute the string "**Name**" unless another string is provided in the source address. This key should have the same value as the **COMPANY** setting (see page J-3).

Default is "**TeleVantage**".

SendDisplayOnAnswerCall

DWORD value specifying whether or not to display the company or user name to inbound Internet callers. You may need to disable this setting to use certain IP boards that do not support this feature.

Default is **0** (automatic), specifying that all boards except the IP041 boards provide a display string when answering a call. A setting of **1** always provides a display string. A setting of **2** never provides a display string.

TruncateRecordings

DWORD value specifying whether or not TeleVantage should truncate extra silence at the end of voice message recordings.

Default is **1** (silence is truncated.) A value of **0** specifies that extra silence is not truncated.

UnknownCallerName

STRING value specifying the name to display in the call log when the actual caller name is unknown.

Default is “Unknown”.

UseConferencesForEchoCancellation

DWORD value specifying whether or not TeleVantage uses additional echo cancellation and gain control to improve the audio quality of forwarded calls on analog trunks. In particular, this feature can improve audio quality for the D/120-JCT board. However, the feature uses a conference resource when it connects an analog trunk to another trunk.

If you have PCI analog trunk boards, you must set the Receive Gain of those boards appropriately depending on whether the feature is on or off. If the feature is on, set the Receive Gain to P1. If the feature is off, set the Receive Gain to N1. For instructions on changing Receive Gain, see *Installing Dialogic Telephony Components*. Note that if you have ISA analog trunk boards, you do not need to change Receive Gain.

When set to **0** (the default), the feature is off.

When set to **1**, the feature is on.

UseDedicatedVoiceDevices

DWORD value specifying whether or not TeleVantage will allocate dedicated voice devices when it allocates a voice device. When the Server requires a voice device (for playing/recording audio, or playing/detecting tones), it attempts to allocate one in the following order:

- Allocate a shared voice device.
- Allocate a dedicated, disconnected voice device (i.e. attached to LSI front end that is not plugged in.)
- If **UseDedicatedVoiceDevices** is enabled, allocate a dedicated, connected voice device.

Default is **1** (Enabled. Server will attempt to allocate dedicated voice devices if necessary.) A value of **0** disables this setting.

UserVoxPath

STRING value specifying the path for local user voice prompts. Path string must end in a backslash.

Default is set during installation.

HKLM\Software\Artisoft\TeleVantage\Server\Settings\

VoxHighEventInterval

DWORD value specifying the time interval (in milliseconds) for generating the Event log message "No Voice Resource Available."

Default is **800000** (15 minutes.)

WaitLoopCurrenttimeout

DWORD value specifying the number of milliseconds to wait for loop current before dialing an outside number. Set this to zero to skip loop current checks when making outbound calls.

Default is **1400** milliseconds.

HKLM\Software\Artisoft\TeleVantage\Server\ Settings\DKT

CallWaitingInterval

DWORD value that controls how long (in milliseconds) Toshiba phones wait between soft rings. The soft ring is the call waiting ring that occurs when a new incoming call arrives to a PDN or SDN while the user is on a call. A value of 0 means the soft ring is disabled.

Default is **3000** milliseconds.

SpeedDialMonitor

DWORD setting that specifies whether digital phone Busy Lamp Field (BLF) is enabled or disabled system-wide. For more about BLF, see "Enabling digital phone Busy Lamp Field for the system" in Chapter 7 in *Administering TeleVantage*.

When set to **1**, BLF is enabled system-wide for all digital phones.

When set to **0** (the default), BLF is disabled system-wide.

HKLM\Software\Artisoft\TeleVantage\Server\ EXTBoard\ZipTone

Frequency

DWORD value that specifies the call waiting tone for external stations. Note that all SIP and H.323 phones are defined as external station.

Changes to the settings take effect on all external stations on the next call waiting tone.

Default is **1250** Hz.

HKLM\Software\Artisoft\TeleVantage\Server\ EXTBoard\ZipTone

Amplitude

DWORD value that specifies the amplitude of the call waiting tone for external stations.

Default is **-32** db.

Duration

DWORD value that specifies (in hundredths of a second) the duration of the call waiting tone for external stations.

Default is **50** (500 milliseconds.)

To disable the call waiting tone for external stations, set **Duration** to **0**.

Registry settings on the TeleVantage workstation computers

All supported TeleVantage workstation registry settings are found (or can be created) under the registry keys presented in this section. The workstation application settings are divided into those that apply to the current user (in the next section) and those set for the local machine (beginning on page J-12.)

Current user settings

The workstation application settings in this section are located in **HKEY_CURRENT_USER (HKCU)**

HKCU\Software\Artisoft\TeleVantage\Client

MaxSelectionBeforeConfirmation

DWORD value specifying the maximum number of items (voice messages, contacts, and so forth) can be selected in ViewPoint to be moved or deleted before the following message is displayed:

“This operation make take some time, do you want to continue?”

For example, if set to **49**, the message will be displayed when 50 or more items are selected in ViewPoint to be moved or deleted.

Default is **49** items selected.

ShowStatusBarServerInfo

DWORD value specifying whether ViewPoint displays on the status bar the name of the Server to which it is connected. A setting of 0 does not display the Server name; a setting of 1 does display it.

Default is **0** on installation.

HKCU\Software\Artisoft\TeleVantage\Client\Admin\App

LoggedInUserId

STRING value indicating the ID of the user who last logged in.

Default is "" (empty string) on installation.

HKCU\Software\Artisoft\TeleVantage\Client\Layout

RedrawMode

DWORD value used to control the "flicker" effect in ViewPoint display. The default setting of 1 (Normal) is less CPU-intensive but may result in a flicker. A setting of 2 (Buffered) eliminates the flicker, but performance may suffer.

Default is **1** on installation.

HKCU\Software\Artisoft\TeleVantage\Client\Logon

Address

STRING value specifying the user's station ID.

Default is **0**.

AutoLogon

DWORD value specifying whether or not autologon is on.

Default is **0** (off.)

Database

STRING value specifying the name of the database.

Default is **"TVDB"**.

History

STRING value specifying the list of recently logged in users. Specify an empty string to clear the list.

Default is "" (empty string.)

Server

STRING value specifying the name of the TeleVantage Server computer. May be either a NetBios name (for example, "TeleVantage") or an IP Address (for example, "123.12.76.102").

Default is "" (empty string.)

HKCU\Software\Artisoft\TeleVantage\Client\Logon

Username

STRING value specifying the user's TeleVantage login name.

Default is "" (empty string.)

HKCU\Software\Artisoft\TeleVantage\Client\Call Monitor

PersistentSort

DWORD value specifying how ViewPoint's Call Monitor displays newly arriving calls, after the view has been sorted by clicking on a column header. A setting of 1 turns on persistent sorting, so that newly arriving calls appear in the correct place according to the sort order. A setting of 0 turns off persistent sorting, so that new calls always appear on the bottom row. After a call appears on the bottom row, you can click a column header to sort the new call correctly with the others.

Note that turning on persistent sorting can result in slower ViewPoint performance.

Default is **0** (persistent sorting off) on installation.

HKCU\Software\Artisoft\TeleVantage\Client\Debug

FreeSpaceRequired

DWORD value specifying the minimum amount of disk space (in megabytes) on the local machine that must be available for workstation application logging. If the minimum amount is not available, no logging will occur.

Default value is **50** MB.

Note: This setting applies to workstation application logging only. To specify the minimum amount of disk space that must be available for TeleVantage Server logging, see **MinDiskFreeSpace** on page J-5.

Local machine settings

The workstation application settings in this section are located in **HKEY_LOCAL_MACHINE** (HKLM.)

HKLM\Software\Artisoft\TeleVantage\Client\SecBridge

MaxTraceFileSize

DWORD value specifying the maximum size (in megabytes) of the SecBridge log file.

Default is **1** MB.

HKLM\Software\Artisoft\TeleVantage\Client\SecBridge

TracePath

STRING value specifying the path at which SecBridge log files are created.

Default is **Program Files/Common Files/<Company><Product Name> /Logs**

OutputToTraceFileOn

DWORD value specifying whether tracing should go to a file on disk.

Default is **1** (yes)

MaxRevisions

DWORD value specifying the number of log file revisions.

Default is **5**.

HKLM\Software\Artisoft\TeleVantage\Client\Server

Pingtimeout

DWORD value specifying the ping timeout duration. If this is not set to 0, users who log on to the Terminal Server remotely will need administrator permissions to run ViewPoint (see “Installing ViewPoint on Microsoft Terminal Server” in *Installing TeleVantage*.)

Default is **5000** milliseconds.

HKLM\Software\Artisoft\TeleVantage\Client\TSP

HangUpCalls

DWORD value specifying whether or not the current user can hang up calls in a TAPI client application that is using the TeleVantage TAPI Service Provider. This setting must be set to 0 for GoldMine users.

Default is **1** (client applications can hang up calls using TAPI functions.) A setting of **0** will prevent client applications from hanging up calls via TAPI.

ServerPingInterval

DWORD value specifying how often the TAPI Service Provider validates the connection to the TeleVantage Server. If the connection is lost, the TAPI Service Provider tries to reconnect.

If the Server is restarted, there is a maximum delay of about 10 minutes before the Contact Manager Assistant, for example, will start popups again for incoming calls.

Default is **10** minutes.

HKLM\Software\Artisoft\TeleVantage\Client\TSP

TraceMaxRevisions

DWORD value specifying the maximum number of backup log files that will be generated on this machine before the TAPI Service Provider starts overwriting the oldest files.

Default is **10** log files.

TraceToFile

DWORD value specifying whether or not the TAPI Service Provider will log activity for this user to a disk file.

Default is **1** (TSP will log.)

TraceDirectory

STRING value specifying the path to the TAPI Service Provider log file folder.

Default is the **\Logs** subdirectory of the TeleVantage ViewPoint install folder.

TraceLevel

DWORD value specifying a number used to limit logging output from the TAPI Service Provider. The higher it is, the more events will be logged.

Default is **10** events.

HKLM\Software\Artisoft\TeleVantage\Client\TSP\Logon

Address

STRING value specifying the station ID that the TAPI Service Provider will monitor for incoming calls. TAPI client applications are notified of all calls to this station.

The user can set and change this value using the TeleVantage TAPI Configuration Wizard.

No default. Must be set before the TAPI Service Provider can run.

Server

STRING value specifying the name of the TeleVantage Server computer to which the TAPI Service Provider will call. May be either a NetBios name (for example, **“TeleVantage”**) or an IP Address (for example, **“123.12.76.102”**.)

The user can set and change this value using the TeleVantage TAPI Configuration Wizard.

No default. Must be set before the TAPI Service Provider can run.

HKLM\Software\Artisoft\TeleVantage\Client\MultilineTSP

HangUpCalls

DWORD value specifying whether or not the current user can hang up calls in a TAPI client application that is using the TeleVantage Multi-line TAPI Service Provider. Note that this is a global setting that applies to all Multi-line TAPI Service Provider lines.

This setting must be set to **0** for GoldMine users.

Default is **1** (client applications can hang up calls using TAPI functions.) A setting of **0** will prevent client applications from hanging up calls via TAPI.

LogPath

STRING value specifying the subdirectory in which TeleVantage Multi-line TSP log files (filename format TVMultilineTSP_svchostxxx.txt) will be created. If this registry value does not exist, or points to an invalid directory, logging will be disabled.

Default path is: "" (empty string.)

HKLM\Software\Artisoft\TeleVantage\Enterprise Manager

ForceDeleteGatewayUser

STRING value specifying whether or not Enterprise Manager deletes the IP Gateway user when the corresponding local extension is removed from replication.

Note: If Enterprise Manager cannot delete an IP Gateway user due to unforwarded voice messages, it no longer maintains that user automatically. Failure to delete the IP Gateway user manually may result in an extension conflict if you decide to replicate the same local extension at a later time.

When set to **"1"**, Enterprise Manager will delete the IP Gateway user regardless of whether or not there are unforwarded voice messages in the IP Gateway user's Inbox.

When set to **"0"** (the default), Enterprise Manager will not delete the IP Gateway user if there are unforwarded voice messages.

LogSize

DWORD value specifying the maximum size (in megabytes) of each Enterprise Manager log file.

Default is **4 MB**.

HKLM\Software\TFTP32

TftpLogFile

STRING value specifying the location of the Tftpd32 TFTP Server log files, for example:

“C:\Program Files\TeleVantage\Tftpd32\TFTP.log”

When this key exists, the Tftpd32 TFTP Server writes an entry to the log file each time any of the SIP or H.323 phones listed in Chapter 17 download updates to the phone's firmware and configuration files from the Tftpd32 TFTP Server.

This setting will take effect the next time that the Tftpd32 TFTP Server service starts.

Note: Since there are no size constraints on Tftpd32 TFTP Server log files, this setting should only be used when troubleshooting problems with SIP phones, typically at the direction of your Tech Support representative.

If this key does not exist (the default), no log files are created.

For more about the Tftpd32 TFTP Server, see Chapter 17.

TeleVantage Server language locale settings _____

TeleVantage currently uses the following locale codes:

EN00	U.S. English
EN10	U.K. English
ES00	Latin American Spanish

HKLM\Software\Artisoft\TeleVantage\Server\TUI

DefaultLocaleCode

STRING value specifying the default locale code.

Default value is determined during installation.

Locale definitions

Each installed locale code has its own set of registry entries, as follows:

HKLM\Software\Artisoft\TeleVantage\Server\TUI

Description

STRING value specifying the language description for this locale code.

Defaults are: EN00 = “**US English**”, EN10 = “**UK English**”, ES00 = “**Latin American Spanish**”.

LocaleDLL

STRING value specifying the DLL to use for this locale code.

Defaults are: EN00 = “**TVLEN00.DLL**”, EN10 = “**TVLEN10.DLL**”, ES00 = “**TVLES00.DLL**”.

SentenceFile

STRING value specifying the sentence file for this locale code.

Defaults are: EN00 = “**TVLEN00.INI**”, EN10 = “**TVLEN10.INI**”, ES00 = “**TVLES00.INI**”.

VapFile

STRING value specifying the system voice file for this locale code.

Defaults are: EN00 = “**TVLEN00.VAP**”, EN10 = “**TVLEN10.VAP**”, ES00 = “**TVLES00.VAP**”.

Defining custom tones

Custom tones can be defined for incoming fax detection and disconnect detection. (Disconnect tone is an issue for analog trunks only. Robbed-bit T1, E1 CAS, and ISDN PRI trunks do not, in general, use an in-band tone to signal a disconnect.) For a detailed discussion of custom disconnect tones, see the TeleVantage Knowledge Base article #1099, “A Practical Guide to Custom Disconnect Tones.”

You can define one incoming fax tone and up to ten different disconnect tones under the following Windows registry keys:

```
HKLM\SOFTWARE\Artisoft\TeleVantage\Server\ToneDefinitions
\IncomingFaxTone
```

```
HKLM\SOFTWARE\Artisoft\TeleVantage\Server\ToneDefinitions
\DisconnectTone<n>
```

where **<n>** is a digit from 1 through 9 (for example, **\DisconnectTone1**, **\DisconnectTone2**, and so forth.)

Custom trunk disconnect detection tones are used in installations where a PBX sits between the central office and TeleVantage, and where the PBX provides a tone to indicate trunk hangup. By default, defines a **DisconnectTone1** as a fast busy tone.

After you enter custom tones, you must restart the TeleVantage Server. At startup, TeleVantage will read the definitions for all custom tones and define them to the Dialogic drivers.

Note: Use the information in this section to define custom disconnect tones via the Windows registry for all Dialogic telephony boards that provide analog trunk resources, except for the following boards: DI0408LSAR2, DM/V160LP, and DM/V160LPEU. For these boards, you must edit the Dialogic .config file associated with the board. For more information, see the TeleVantage Knowledge Base article #1099.

Each custom tone is defined by the DWORD values listed in the following table.

Custom Tone Keys	
Key	Description
freq1	First frequency (in Hz) for the tone
freq1dev	Allowable deviation for the first frequency (in Hz.) This allows TeleVantage to use a range for detecting the tone, instead of an exact frequency.
freq2	Second frequency (in Hz) for the tone
freq2dev	Allowable deviation for the second frequency (in Hz)
cadence	Enables or disables cadence. 1 = enabled and 0 = disabled.
minrep	Number of repetitions for the cadence (that is, the number of times that the on/off signal is repeated)
dualtone	Specifies whether the tone is a dual tone or single tone. 0 = single tone and 1 = dual tone.
cadenceon	Length of time for which the cadence is “on” (in 10ms units)

Custom Tone Keys	
Key	Description
cadenceon_dev	Allowable deviation for “on” time (in 10ms units)
cadenceoff	Length of time for which the cadence is “off” (in 10ms units)
cadenceoff_dev	Allowable deviation for “off” time (in 10ms units)
leadingedge	1 = tone detection on leading edge, 0 = on trailing edge

Example: Defining a disconnect tone

The keys in the next table are DWORD values that define the default disconnect tone for TeleVantage. The tone has the following characteristics:

- A Dual Tone Frequency with a first frequency of 450Hz – 510 Hz (that is, 480 +/- 30) and a second frequency of 580ms – 660ms (that is, 620 +/- 40)
- On and off times are both between 200ms – 300ms (that is, 250ms +/- 50ms)
- Cadence must repeat 2 times
- Cadence begins on the leading edge of the tone

Custom Tone Keys		
Key	DWORD	Description
freq1	480	First frequency (in Hz) for the tone
freq1dev	30	Allowable deviation for first frequency (in Hz)
freq2	620	Second frequency (in Hz) for the tone
freq2dev	40	Allowable deviation for second frequency (in Hz)
cadence	1	1 = cadenced tone, 0 = noncadenced tone
minrep	2	Number of repetitions for the cadence
dualtone	1	1 = dualtone, 0 = single tone
cadenceon	25	Time for which cadence is “on” (in 10ms units)
cadenceon_dev	5	Allowable deviation for “on” time (in 10ms units)
cadenceoff	25	Time for which cadence is “off” (in 10ms units)
cadenceoff_dev	5	Allowable deviation for “off” time (in 10ms units)
leadingedge	1	Tone detection: 1 = leading edge, 0 = trailing edge

Disabling Dialogic devices

By default, TeleVantage allocates and opens all Dialogic devices that are present on the Server for itself. If you do not want TeleVantage to allocate all of the available devices, use the procedure described later in this section to disable the Dialogic devices.

You might need to disable Dialogic devices for any of the following reasons:

- **Disable devices to allow non-TeleVantage applications to run on the TeleVantage Server.** For example, you may have another telephony application installed on the TeleVantage Server that must own some Dialogic devices. You would identify the specific Dialogic devices and channels required by the application, and then disable those devices. When TeleVantage opens Dialogic devices at startup, it will ignore the disabled devices, making them available to the application.
Note: You do not need to reserve devices when developing an IVR Plug-in, which will automatically share TeleVantage's Dialogic resources as needed.
- **Disable devices to connect a fractional T1 or E1 line to TeleVantage.** For example, you may have a T1 line with 12 channels instead of 24. To connect this T1 line to TeleVantage, you still connect it to a Dialogic board with 24 channels, but you disable half of the channels. When TeleVantage starts, it will see 12 instead of 24 trunks, which will match the fractional T1 line. You must be sure to disable the correct half, for example, trunks 1-12 or trunks 13-24, whichever matches the fraction of the T1 line you have.
- **Disable devices to ignore several trunks on a telephony board and use its voice resources only.** For example, you could install a D480SC-2T1 card that supports two T1 lines (even though you only have one T1 line) and 48 voice processors in one slot. The D480SC-2T1 card has 24 extra voice resources that you can use to provide dial tone and voice prompts for those 24 stations. Installing a D240SC-T1 card (that supports only one T1 line) and another board that provides the additional 24 voice resources would consume an additional slot. For this configuration, you would disable the T1 resources for the second T1 line on the D480SC-2T1 board. TeleVantage will not see the disabled T1 resources when starting up, but it will see all the voice resources.

To disable Dialogic devices in the Windows registry

1. Using the conventions described in “Dialogic device names” on page J-24, determine the device names for the Dialogic devices you want to disable.
2. Run **Regedit**.
3. Create the following key as a string value (if it does not already exist):

HKLM\SOFTWARE\Artisoft\TeleVantage\Server\Settings\DisableDevices

4. Set the contents of **DisableDevices** to a comma-separated list of the device names you are disabling.

For example, to disable the third and fourth channels on the first telephony board in a system, set the contents of **DisableDevices** as follows:

DXXXB1C3,DXXXB1C4

To disable all the channels on a board, set **DisableDevices** to the board name without any channel, for example:

DXXXB1

5. Save the changes to the registry.

Note: If you add or remove Dialogic boards, you must update the **DisableDevices** list.

Modifying how conference resources are used

By default, TeleVantage may utilize the conference resources on any board in the system that meets the conference requirements to start a conference call and add participants. Priority settings and board order determine which available board is used first, if more than one board meets the conference requirements.

Some boards support more conferences, or more parties per conference than others. If a conference grows too large for the board currently handling it, the conference is automatically moved to a board that supports the increased number of participants, if one is available. (See Appendix A in *Installing Dialogic Telephony Components* for details on the conference capabilities of different telephony boards.)

You can modify how conference resources are used in the following ways:

- **Disable all of the conferencing resources on an individual board.** See the next section for details.
- **Change a board's conference priority.** For instructions, see "Changing a board's conference priority" on page J-22.

Disabling a board's conference resources

Disabled conference resources are never used for TeleVantage conference calls. One reason to do this (rather than disable all of the resources on the board as described in "Disabling Dialogic devices" on page J-20), would be to keep a board's conferencing resources free for use by another application, while still allowing its other resources to be used by TeleVantage.

You can disable all of the conference resources on a board via the Windows registry.

Note: For some boards, conference resources are only available when the boards are configured with certain media loads, as indicated in the table on page J-22; other media loads do not provide conference resources on these boards.

To disable a board's conference resources

1. Run **Regedit**.
2. Create the following key (if it does not already exist):
HKLM\SOFTWARE\Artisoft\TeleVantage\Server\Settings\DisableDevices
3. Under **DisableDevices**, create a **STRING** Value containing the board name whose conference resources you want to disable, using the appropriate format for your board type as listed in the following table.

Board	Media Load	Value	where
DISIx analog station boards	n/a	/DCBBnDy	n and y are the board number
DI0408LSAR2 integrated trunk and station board	ml3 or ml4		
DM/IP241-1T1-P100 Internet telephony board	ml11		
DM/IP301-1E1-P100 Internet telephony board	ml11		
DM/V480A-2T1-PCI T1 trunk board	ml10		
DM/V600A-2E1-PCI E1 trunk board	ml10		
DM/V1200A-4E1-PCI E1 trunk board	ul1		
DM/V2400A conference bridge board	ml9		
Toshiba CS-DKTU digital station board	n/a	/DktConfBn	n is the board number

4. To disable conference resources on additional boards, repeat step 3 for each board.
5. Save the changes to the registry.

Changing a board's conference priority

When a conference call is created, TeleVantage chooses which telephony board handles the conference based on the board's conference priority setting. The highest-priority board (with the lowest priority number) that meets the conference requirements gets chosen first. The lower a board's priority number is, the more often it will be used for conference calls.

You might change a board's conference priority to reserve the resources on the board for larger conferences. For example, DI/SIx boards support up to 16 participants per conference, while the DM/V2400A board supports up to 60 participants. While both boards have the same default conference priority, you could change priorities so that the resources on the DI/SIx boards are used first. That way, the DM/V2400A resources are available to handle conferences with more than 16 participants.

The table on page J-23 lists the default priorities assigned to each of the boards that provide conference resources. You can change a particular board's conference priority via the Windows registry.

Note: For some boards, conference resources are only available when the boards are configured with certain media loads, as indicated in the table on page J-23; other media loads do not provide conference resources on these boards.

To change a board's conference priority

1. Run **Regedit**.
2. Create the following key for the board that you want to prioritize (if it does not already exist):

HKLM\SOFTWARE\Artisoft\TeleVantage\Server\<boardName>

where **<boardName>** is the appropriate Value for your board type as listed in the following table.

Board	Media load	Default priority	Value	where
DISlx analog station boards	n/a	200	/DCBBoard <i>n</i>	<i>n</i> is the board number
DI0408LSAR2 integrated trunk and station board	ml3 or ml4			
DM/IP241-1T1-P100 Internet telephony board ¹	ml11			
DM/IP301-1E1-P100 Internet telephony board ^a	ml11			
DM/V480A-2T1-PCI T1 trunk board	ml10			
DM/V600A-2E1-PCI E1 trunk board	ml10			
DM/V960A-4T1-PCI T1 trunk board	ml9b			
DM/V1200A-4E1-PCI E1 trunk board	ul1			
DM/V2400A conference bridge board	ml9			
Toshiba CS-DKTU digital station board	n/a	300	/DktBoard <i>n</i>	

¹ Conference resources are available on this board only if you set up your Internet span as a host-based stack. See "Using a host-based VoIP stack" in Chapter 4 in *Installing TeleVantage* for more information.

3. Create a DWORD Value **ConfPriority** under the key you created in the previous step (if it does not already exist), and set it to 100 (highest priority), 200 (medium priority), or 300 (lowest priority.)
4. To change the conference priority of additional boards, repeat steps 2-3 for each board.
5. Save the changes to the registry.

Dialogic device names

Dialogic system software creates standard names for devices and channels within devices. These names are used to open the devices to receive device handles, which are used in all subsequent Dialogic driver functions.

Dialogic telephony board device names

A Dialogic telephony board device name has the form **DXXXBnCn**, where **Bn** is the board number and **Cn** is the channel number. For example, Channel 1 on Board 1 would be named **DXXXB1C1**. If multiple telephony boards have been installed, the board number 1 is assigned to the Dialogic telephony board that was installed in the TeleVantage Server with the lowest board ID. (For information about setting Dialogic board IDs, see *Installing Dialogic Telephony Components*.) The board number is then incremented by 1 for every four voice ports. The channel number is assigned sequentially starting with 1 each time the board number changes and incremented by 1 for each voice channel. Whenever all the devices on one Dialogic telephony board have been named, the board-numbering sequence continues on the Dialogic telephony board that was installed with the next lowest board ID.

For example, if you installed a Dialogic D/120JCT-LS in the TeleVantage Server with the board ID set to 0 and a D/41JCT-LS with the board ID set to 1, the devices on these boards would have the names shown in the following table.

Board	Board ID	Channel
D/120JCT-LS	0	DXXXB1C1 - LSI/VOX DXXXB1C2 - LSI/VOX DXXXB1C3 - LSI/VOX DXXXB1C4 - LSI/VOX DXXXB2C1 - VOX DXXXB2C2 - VOX DXXXB2C3 - VOX DXXXB2C4 - VOX
D/41JCT-LS	1	DXXXB3C1 - LSI/VOX DXXXB3C2 - LSI/VOX DXXXB3C3 - LSI/VOX DXXXB3C4 - LSI/VOX

If you assigned the lower board ID to the D/41JCT-LS board, the devices on the same boards would have the names shown in the following table.

Board	Board ID	Channel
D/120JCT-LS	0	DXXXB1C1 - LSI/VOX DXXXB1C2 - LSI/VOX DXXXB1C3 - LSI/VOX DXXXB1C4 - LSI/VOX
D/41JCT-LS	1	DXXXB2C1 - LSI/VOX DXXXB2C2 - LSI/VOX DXXXB2C3 - LSI/VOX DXXXB2C4 - LSI/VOX DXXXB3C1 - VOX DXXXB3C2 - VOX DXXXB3C3 - VOX DXXXB3C4 - VOX

Dialogic Internet telephony board device names

You can disable Dialogic Internet telephony boards to make them available for non-TeleVantage use, but you cannot disable individual channels on the boards. Board names use the form **DM3Board n** , where n is the board number. The board number is assigned sequentially starting with zero and is incremented by 1 for each board.

Dialogic telephony board settings

Dialogic telephony board settings consist of VoiceBoard keys, which apply to all channels for a specified board number, and VoiceBoard Line keys, which apply to individual channels on the board.

VoiceBoard settings

VoiceBoard keys are located under:

HKLM\SOFTWARE\Artisoft\TeleVantage\Server\VoiceBoard< n >

where **< n >** is the Dialogic board number (see “Dialogic device names” on page J-24 for an explanation of board numbering conventions.)

HKLM\Software\Artisoft\TeleVantage\Server\VoiceBoard< n >		
Key	Default	Description
DXBD_FLASHCHR	&	Flash Character. Character that causes a hook flash when detected. (10ms units.)
DXBD_FLASHTM	50	Flash Time. Length of time onhook during flash. (10ms units.)

HKLM\Software\Artisoft\TeleVantage\Server\VoiceBoard<n>

Key	Default	Description
DXBD_MAXPDOFF	50	Maximum Pulse Digit Off. Maximum time loop current may be off before the existing loop pulse digit is considered invalid and reception is re-initialized. (10ms units.)
DXBD_MAXSLOFF	25	Maximum Silence Off. Maximum time for silence being off, during audio pulse detection. (10ms units.)
DXBD_MINIPD	25	Minimum Loop Interpulse Detection. Minimum time between loop pulse digits during loop pulse detection. (10ms units.)
DXBD_MINISL	25	Minimum Interdigit Silence. Minimum time for silence to be on between pulse digits for audio pulse detection. (10ms units.)
DXBD_MINLCOFF	40	<p>Minimum Loop Current Off. Minimum time before loop current drop message is sent. (10ms units.)</p> <p>Note that boards in the DI series are not affected by this setting. To change minimum loop current off on a DI board, you must edit the config file (for example, @DI0408LSA_REV2_ML3.config) and change the following line:</p> <pre>transition=0xC15CA024,0x80,0x88,100,400 ! Net_Drop (0xxx->1xxx)</pre> <p>400 is the min lc off value and 100 is the buffer time.</p>
DXBD_MINPDOFF	2	Minimum Pulse Detection Off. Minimum break interval for valid loop pulse detection. (10ms units.)
DXBD_MINPDON	2	Minimum Pulse Detection On. Minimum make interval for valid loop pulse detection. (10ms units.)
DXBD_MINSLOFF	2	Minimum Silence Off. Minimum time for silence to be off for valid audio pulse detection. (10ms units.)
DXBD_MINSLOON	1	Minimum Silence On. Minimum time for silence to be on for valid audio pulse detection. (10ms units.)
DXBD_MINTIOF	5	Minimum DTI Off. Minimum time required between ring-received events. (10ms units.)
DXBD_MINTION	5	Minimum DTI On. Minimum time required for rings received event. (10ms units.)
DXBD_OFFHDLY	50	Off-hook Delay. Period after off-hook, during which no events are generated (no DTMF digits detected during this time.) (10ms units.)
DXBD_PAUSETM	20 0	Pause Time. Delay caused by a comma in the dialing string. (10ms units.)
DXBD_P_BK	6	Pulse Dial Break. Duration of pulse dial off-hook interval. (10ms units.)

HKLM\Software\Artisoft\TeleVantage\Server\VoiceBoard<n>

Key	Default	Description
DXBD_P_IDD	10 0	Pulse Interdigit Delay. Time between digits in pulse dialing. (10ms units.)
DXBD_P_MK	4	Pulse Dial Make. Duration of pulse dial off-hook interval. (10ms units.)
DXBD_R_EDGE	2	Ring Edge. Detection of ring edge: 1- Beginning of ring 2 - End of ring
DXBD_R_IRD	80	Inter-ring Delay. Maximum time to wait for the next ring (100ms units.) Distinguishes between calls. Set to 1 for T-1.
DXBD_R_OFF	5	Ring-off interval. Minimum time for ring not to be present before qualifying as “not ringing” (100 ms units.)
DXBD_R_ON	3	Ring-on Interval. Minimum time ring must be present to qualify as a ring (100ms units.)
DXBD_S_BNC	4	Silence and Non-silence Debounce. Length of a changed state before Call Status Transition message is generated. (10ms units.)
DXBD_TTDATA	10	Duration of DTMF digits for dialing. (10ms units.)
DXBD_MFMINON	0	Minimum MF On. The duration to be added to the standard MF tone duration before the tone is detected. The minimum detection duration is 65ms for KP tones and 40ms for all other tones. This parameters affects all the channels on the board (10ms units.)
DXBD_MFTONE	6	MF Minimum Tone Duration. The duration of a dialed MF tone. This parameter affects all the channels on the board. Max value 10 (10ms units.)
DXBD_MFDELAY	6	MF Interdigit Delay. The length of silence period between tones during MF dialing. This parameter affects all the channels on the board (10ms units.)
DXBD_MFLKPTONE	10	MF length of LKP Tone. The length of the LKP tone during MF dialing. This parameter affects all the channels on the specified board. Max value 15 (10ms units.)
DXBD_T_IDD	5	DTMF Interdigit Delay. Time between digits in DTMF dialing. (10ms units.)
DXBD_MINOFFHKTM	25 0	Minimum Off-hook Time. Specified in 10ms units.

VoiceBoard channel settings

Channel-level settings are controlled by the VoiceBoard Line registry keys, which are located under:

HKLM\SOFTWARE\Artisoft\TeleVantage\Server\VoiceBoard<n1>\Line<n2>

where <n1> is the Dialogic board number and <n2> is the channel number (see “Dialogic device names” on page J-24 for an explanation of board and channel numbering conventions.)

..\Server\VoiceBoard<n1>\Line<n2>

DXCH_ADSIALERT_AMPL

DWORD value that specifies the volume of the ADSI alert tone, which is the first Caller ID beep when sending Caller ID with call waiting. The Dialogic default is -13, which is louder than the TeleVantage setting.

TeleVantage default is **-23**.

MinTrunkOnhookTime

DWORD value specifying the minimum on-hook time in milliseconds before the trunk will be used for another outbound call.

Note: If you are using a dedicated trunk for automatic pages, you should set the value for that trunk to 1000 milliseconds, otherwise paging calls may fail if they occur too soon after a previous one.

Default is **3000** milliseconds.

DXCH_D_FLAGS

DWORD value for DTMF detection edge select.

Default is **0**.

DXCH_DTINITSET

DWORD value that specifies the DTMF digits on which to initiate play on. You can OR values of different DTMF digits to form the bit mask. Legal values are as follows:

Value	Digit	Value	Digit
-DM_1	1	-DM_9	9
-DM_2	2	-DM_0	0
-DM_3	3	-DM_S	*
-DM_4	4	-DM_P	&
-DM_5	5	-DM_A	a
-DM_6	6	-DM_B	b
-DM_7	7	-DM_C	c
-DM_8	8	-DM_D	d

Default is **0**.

DXCH_DTMFTLK

DWORD value for **DTMF Talk**. Sets the minimum time for DTMF to be present during playback to be considered valid. Increasing the value provides more immunity to talkoff/playoff. Set to -1 to disable.

Default is **5**.

DXCH_DTMFDEB

DWORD value for **DTMF debounce time**. Maximum length of time in which DTMF can be absent and then come back on again and still be considered the same DTMF tone.

Default is **0**.

DXCH_MFMODE

DWORD value for **MF Mode**. A word-length bit mask that selects the minimum length of KP tones to be detected. Possible values:

- **0** - detect KP tone > 40ms
- **2** - detect KP tone > 65ms
- **Greater than 2** - KP tone returned to application during MF detection. Ensures only standard length KP tones (100ms) are detected. If set to 0 any KP tone greater than 40ms will be detected.

Default is **2**.

DXCH_MAXRWINK

DWORD value for **Maximum Loop Current for wink**. Maximum time loop current needs to be on before recognizing a wink (10ms units)

Default is **20**.

DXCH_MINRWINK

DWORD value for **Minimum Loop Current for wink**. Minimum time loop current needs to be on before recognizing a wink (10ms units)

Default is **10**.

DXCH_WINKDLY

DWORD value for **Wink Delay**. The delay after a ring is received before issuing a wink (10ms units)

Default is **15**.

DXCH_RINGCNT

DWORD value for **Ring Count**. Number of rings to wait before returning a ring event.

Default is **4**.

..\Server\VoiceBoard<n1>\Line<n2>

DXCH_WINKLEN

DWORD value for **Wink Length**. The duration of a wink in the off-hook state (10ms units.)

Default is **15**.

Robbed Bit T1 Setting

The setting **IgnoreSpuriousSignals** should be activated only in cases where all other efforts to configure Robbed Bit T1 signaling correctly have failed (see “Adding a digital Robbed Bit T1 span” in Chapter 5 in *Administering TeleVantage*.)

HKLM\SOFTWARE\Artisoft\TeleVantage\Server\DTIBoard<n>

\Server\DTIBoard<n>

IgnoreSpuriousSignals

DWORD value to aid correct Robbed Bit T1 configuration when other methods have failed. If enabled, the **IgnoreSpuriousSignals** setting makes TeleVantage ignore certain signals if the device is offhook.

To enable, set to **00000001**.

To disable, set to **00000000**.

E1 and T1 board settings

In the following lists, **Board<n>** refers to a Dialogic board number. See “Dialogic device names” on page J-24 for an explanation of board numbering conventions.

HKLM\SOFTWARE\Artisoft\TeleVantage\Server\DTIBoard<n>\GlobalCall

\Server\DTIBoard<n>\GlobalCall

CIDName...

The **CIDName** settings allow you to customize how your system receives Calling Name Identification on PRI lines. See the next section, “Configuring Calling Name Identification on PRI boards.”

DumpCallInfo

DWORD value specifying whether or not to include raw call-event information elements from E1 and T1 trunks (ISDN PRI, robbed-bit, CAS) in the TeleVantage Server log (filename format **Tvlogxxx.txt**.)

Default is **0**, which suppresses the information element logging. Set to **1** to include the information elements in the log.

HandleProgressInd

DWORD value specifying whether TeleVantage uses IE-based audio connection on ISDN trunks. Add for each PRI board in your system. When this feature is turned on, audio is connected on IEs of 1 and 8 on PROCEEDING, SETUP_ACK, and ALERTING.

When set to **0** (the default), this feature is turned off. Audio connects on all ISDN calls regardless of Progress IEs.

When set to **1**, this feature is turned on. Audio connects on ISDN calls only with the IEs described above.

InProtocol and OutProtocol

These values define the CAS protocol on E1 boards. For details, see “Manually entering E1 CAS protocols” in *Installing Dialogic Telephony Components*.

DNISLength

DWORD value specifying the number of expected DNIS (DDI) digits (in milliseconds) to be received by the TeleVantage Server before attempting to process the inbound call.

No default, but the TeleVantage Server attempts to get the DNIS 9 digit string upon notification of an inbound call.

DNISWaitTime

DWORD value specifying the expected DNIS (DDI) time (in milliseconds) that the TeleVantage Server will wait for digits to be received before attempting to process the inbound call.

Default is **2000** milliseconds (2 seconds) after it receives the notification of an inbound call.

OverlappedDNIS

DWORD value specifying how DNIS digits are delivered on your system. Normally, DNIS digits are delivered completely on the SETUP message. Some European switches deliver DNIS digits one at a time after the SETUP message (“overlapped digits.”)

If set to **0** (the default), DNIS digits are delivered completely on the SETUP message.

If set to **1**, DNIS digits are delivered as overlapped digits.

Configuring Calling Name Identification on PRI boards

Depending on your ISDN provider, Calling Name Identification is delivered in an Information Element (IE) either when the incoming call is offered (in the SETUP message), or on a subsequent FACILITY message.

This information is controlled via the registry values described below. The default values represent commonly-used settings, but you may need to customize the defaults based on how your provider delivers Calling Name Identification.

Add the following for each PRI board in your system, under:

HKLM\SOFTWARE\Artisoft\TeleVantage\Server\DTIBoard1\GlobalCall

- **CIDNameOnSetup** (DWORD.) Message that contains the calling name field. When set to **0**, calling name is delivered in the FACILITY message. When set to **1** (the default), calling name is delivered in the SETUP message.
- **CIDNameIE** (DWORD.) IE in which the calling name field is delivered. default is **28** (0x1C.)
- **CIDNameOffset** (DWORD.) Offset within the IE where the calling name field begins. Default is **14** (0x0E.)
- **CIDNameLength** (DWORD.) Length of the calling name field within the IE. Default is **15** (0x0F.)
- **CIDNameTimeout** (DWORD.) Used only when CIDNameOnSetup = 0. Maximum length of time TeleVantage waits for the FACILITY message to arrive. The default, **2000**, specifies a 2-second wait.

The following is a sample IE taken from a TeleVantage Server log that conforms to the default CIDNameIE, CIDNameOffset, and CIDNameLength values described above. The IE is displayed in hexadecimal and ASCII:

```
IE: 0x1C: 9F 8B 01 00|A1 17 02 01|01 02 01 00|80 0F 52 4F|42 42 49 4E|53 20 45 4E|47 49 4E 45|45
".....!.....ROBBINS ENGINEE"
```

BRI board settings

HKLM\SOFTWARE\Artisoft\TeleVantage\Server\BRIBoard<n>\ISDN

\Server\BRIBoard<n>\ISDN

DumpCallInfo

DWORD value specifying whether or not to include raw call-event information elements from BRI trunks in the TeleVantage Server log (filename format **Tvlogxxx.txt**.)

Default is **0**, which suppresses the information element logging. Set to **1** to include the information elements in the log.

DNISWaitTime

DWORD value specifying the expected DNIS (DDI) time (in milliseconds) that the TeleVantage Server will wait for digits to be received before attempting to process the inbound call.

Default is **2000** milliseconds (2 seconds) after it receives the notification of an inbound call.

\Server\BRIBoard<n>\ISDN

HandleProgressID

DWORD value specifying whether TeleVantage uses IE-based audio connection on ISDN trunks. Add for each BRI board in your system. When this feature is turned on, audio is connected on IEs of 1 and 8 on PROCEEDING, SETUP_ACK, and ALERTING.

When set to **0**, (the default), this feature is turned off. Audio connects on all ISDN calls regardless of Progress IEs.

When set to **1**, this feature is turned on. Audio connects on ISDN calls only with the IEs described above.

OverlappedDNIS

DWORD value specifying how DNIS digits are delivered on your system. Normally, DNIS digits are delivered completely on the SETUP message. Some European switches deliver DNIS digits one at a time after the SETUP message (overlapped digits.)

Set to **0** (the default) if DNIS digits are delivered completely on the SETUP message.

Set to **1** if DNIS digits are delivered as overlapped digits.

PointToPoint

DWORD value specifying whether the board uses point-to-point protocol.

To use point-to-point protocol, set to **1**. You must also change the firmware file for the board (see *Installing Dialogic Telephony Components*.)

Default is **0** (Multipoint protocol)

ISDN Megacom service settings

These settings enable you to make outbound international calls using ISDN Megacom service. The first setting is required, and the last two settings are optional.

For each outbound call, TeleVantage checks the dial string to see if it is prefixed with the number specified in **InternationalPrefix**.

If it does not contain the international prefix, the call proceeds like a normal domestic call, and no further steps occur.

If it does contain the international prefix, TeleVantage strips the prefix from the dial string, and then checks whether **InternationalType** and **InternationalPlan** are present. If they are, TeleVantage uses them to override the called number and calling number call parameters.

HKLM\SOFTWARE\Artisoft\TeleVantage\Server\DTIBoard<n>\GlobalCall\MakeCall

..\DTIBoard<n>\GlobalCall\MakeCall

InternationalPrefix

STRING value for your international dialing prefix. For example, **InternationalPrefix="011"**.

Default is "011".

InternationalType

DWORD value used to override the called number call parameter.

Default is 1 (INTL_NUMBER.)

InternationalPlan

DWORD value used to override the calling number call parameter.

Default is 1 (ISDN_NUMB_PLAN.)

Using the TeleVantage Advanced Settings Editor

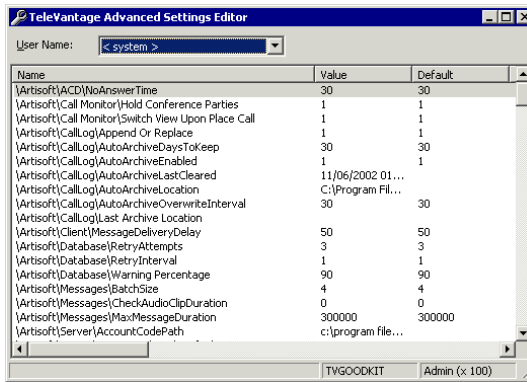
The TeleVantage Advanced Settings Editor is a utility that you can use to view and alter settings for both the Server and individual users. The TeleVantage Server uses a database to store numerous settings. Other TeleVantage settings are stored in the Windows registry of each machine, as described in "TeleVantage registry settings" on page J-2. You must have Administrator permissions to run the TeleVantage Advanced Settings Editor.

Use this utility with extreme caution, preferably under the direction of your TeleVantage provider.

To run the TeleVantage Advanced Settings Editor, start the Administrator and choose **Tools > Advanced Settings Editor**.

Viewing current values

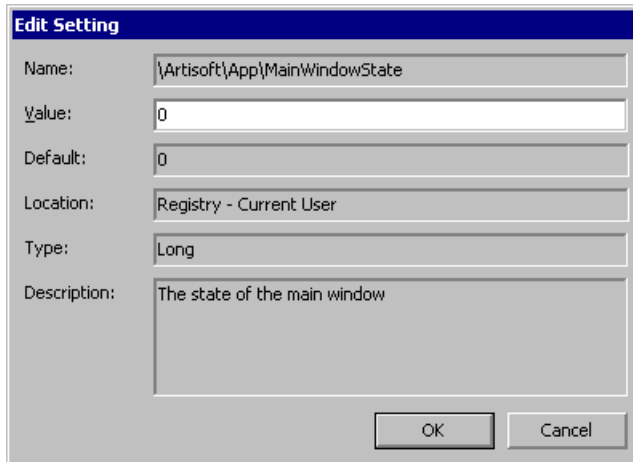
The main window of the program displays a list of all available settings.



- In the **User Name** drop-down list, select a TeleVantage user. In the **Location** column, “User” refers to the user specified here.
- **Name** indicates the path and name of the key.
- **Value** indicates the current value of this key. You can change the value by double-clicking the item and entering a new value in the Edit Setting dialog box, as described in the next section, “Changing key values.”
- **Default** indicates the TeleVantage default value for this key.
- **Location** indicates where the key value will be stored. “User” and “Server” keys are stored in a database on the TeleVantage Server. “Registry” keys are stored in the Windows Registry of the machine on which you are running the TeleVantage Settings program.
- **Type** indicates whether the value is Boolean, Long, or String.

Changing key values

When you double-click on a key listed in the main window, the Edit Setting dialog box opens.

The image shows a dialog box titled "Edit Setting". It contains several labeled text input fields: "Name:" with the value "\Artisoft\App\MainWindowState", "Value:" with "0", "Default:" with "0", "Location:" with "Registry - Current User", "Type:" with "Long", and "Description:" with "The state of the main window". At the bottom right, there are two buttons: "OK" and "Cancel".

- **Name** displays the name of the key.
- **Value** allows you to change the value of the key by typing a new value and clicking **OK**.
- **Default** displays the default value.
- **Location** displays the location of the key.
- **Type** displays the type of value for this key (Boolean, Long, or String.)
- **Description** displays a description of the key.

Modifying other supported TeleVantage settings

Vertical support is available for the settings described in this section. These settings are stored either as Registry keys on the current computer or as System items on the Server database. Support is not available for other settings except when your TeleVantage provider has specifically instructed you to alter them.

Registry keys on the current computer

audio\temp file dir

STRING value that specifies the directory in which to store temporary files.

Default value is "" (empty string.)

audio\VolumePercentage

DWORD value that specifies the percentage to increase the current wave volume on playback or recordings or greetings.

Default value is **35** (increase volume by 35%.)

Registry keys on the current computer

Call Monitor\Hold Conference Parties

DWORD value that specifies whether or not external conference parties may be put on hold.

Default value is **1** (true.) A value of **0** would specify that parties may not be put on hold.

Database\Connectiontimeout

DWORD value that specifies the amount of time (in seconds) to wait before timing out when connecting to the database.

Default value is **15** seconds.

Device Monitor\RefreshInterval

DWORD value that specifies the interval (in minutes) between Device Monitor application refresh cycles.

Default value is **5** minutes.

System database settings

ACD\NoAnswerTime

DWORD value that specifies how long to wait after an agent in a call center queue fails to answer a call before offering that agent another call.

A setting of **0** means that available agent phones will always be rung, even if a call comes in immediately after they failed to answer one. **0** is a useful setting for queues using simultaneous ring.

Note: A setting of **0** indicates that agents will never be placed in the NoAnswer state. This means that agents will never be detected as having failed to answer a call; therefore, they will never be automatically placed On Break for missing calls, even if the queue is set to do so. Also, the queue statistics Away, No Answer, and Forced Break will never be incremented, even if a call is placed back on the queue because an agent failed to answer the phone.

Default value is **30** seconds.

System database settings

\CallLog\AutoArchiveDelay

\CallLog\AutoArchiveDelayInterval

DWORD values that enable you to slow down Call Log archiving so that the process consumes less CPU usage.

AutoArchiveDelayInterval specifies how often a delay is inserted into the archive process. Enter the number of calls to be archived between each instance of the delay. For example, if set to **10** (the default), the delay will be inserted after every 10 archived calls. If set to **0**, the delay is turned off, and Call Log archiving proceeds at full speed and CPU usage.

AutoArchiveDelay specifies a delay in milliseconds (the default setting is **200**.)

As a rough guideline, a delay of 200 every 10 calls should peak CPU use at about 70% and a delay of 200 every 1 call will peak it at about 25%. Each system is different, so test to find the values that work for you.

Note: Changes to these settings will be applied the next time that the Call Log is archived.

Messages\MaxMessageDuration

Maximum length (in minutes) of a single voice message.

Default is **5** minutes.

Server\ACDWrapupTime

DWORD value specifying the number of milliseconds (for ACD group) between when an agent hangs up a call and when the oldest waiting caller is notified that the agent became available.

Default is **4000** milliseconds.

Server\AutoAttendantInterdigitTimeout

DWORD value specifying how long (in milliseconds) an auto attendant waits to see whether a dialed number is complete in cases where ambiguous numbers exist, for example, when there is a menu choice at 2 and an extension at 200.

Default is **3000** milliseconds.

Server\BufferDirCleanupThreshold

DWORD value specifying the threshold age (in days) of old files that the Server automatically deletes from the buffer directory. The Server will delete files as old or older than this setting. Note that many buffer files are created by workstation applications such as ViewPoint, so the threshold should be kept long enough so that workstation applications will be stopped and restarted, ensuring that the remaining files are really unused.

Default value is **10** days.

System database settings

Server\CPAConnectDelay

DWORD value that specifies the delay in milliseconds after call progress analysis returns the connected result before marking an outbound call as connected. Increasing this value may help discriminate between abandoned and connected calls.

Default value is **2000** milliseconds.

Server\AllowCallsWithoutUsers

DWORD value that specifies whether or not to allow conference calls with no users (that is, all parties have left the conference) and external transfers of external calls.

Default value is **1** (true.) A value of **0** would prevent conference calls with no users and external transfers of external calls.

Server\AllowGatewayUserLogin

DWORD value. If this value is non-zero, the system will allow Gateway users to log in from an auto attendant or internal dial tone. Gateway users inherit the permissions of their Enterprise Gateway and usually have the ability to dial external numbers while logged in on a trunk.

Default value is **1**.

Server\AudioControlRingtimeout

DWORD value that specifies the maximum time (in milliseconds) that the TVAudio Control will spend attempting to connect before returning with a timeout.

Default value is **30000** milliseconds.

Server\CallRecordingBeepFile

Specifies the filename of the file containing the sound used as a reminder beep during call recordings (see “Including a beep on call recordings” in Chapter 4 in *Administering TeleVantage*.) By default the file is **StdCallRecordingBeep.vox**, which produces a 500 millisecond beep. TeleVantage provides an alternate file called

ShortCallRecordingBeep.vox, which produces a 200-millisecond beep. Both beeps have a frequency of 1400 Hz with a 25% amplitude. You can specify your own filename as long as the file resides in the default prompt directory (by default, **C:\Program Files\TeleVantage Server\Vfiles**.)

See CallRecordingBeepInterval for the spacing between beeps.

Default value is **StdCallRecordingBeep.vox**

Server\CallRecordingBeepInterval

The time (in milliseconds) between reminder beeps on call recordings. The beep interval will never be less than the duration of the beep sound file (**CallRecordingBeepFile**) plus one second, regardless of what is entered here.

Default value is **15,000** milliseconds (15 seconds.)

System database settings

Server\CCRouteOutbound

DWORD value that determines whether or not outbound calls are recognized by call center distribution algorithms. For example, whether “Longest Idle Agent” counts agents’ outbound calls.

Default is **0** (off), meaning outbound calls are not recognized by call center distribution algorithms. Can be set to **1** (on) to recognize outbound calls.

Server\CheckRecipientCallForSetting

DWORD value. Check both callee and recipient “call for” setting. The callee is the person whom the call is for. The recipient is the person who answers the phone, or, to be more precise, the person who most recently logged in at that station. Note that these can be different people.

Default value is **1** (yes.) With this setting (or if the setting is not present), “call for” will be announced if either the callee or the recipient has “call for” turned on. Can be set to **0** (no.)

Server\DefaultGreetingSize

DWORD value that specifies default size (in minutes) for greeting space.

Default value is **10** minutes.

Server\DefaultMailboxSize

DWORD value that specifies default size for a new mailbox.

Default value is **20**.

Server\Dial911AtDialtone

DWORD value that specifies whether the emergency number can be dialed at the internal dial tone.

Default value is **0** (no.) Can be set to **1** (yes.)

Server\DialToneAfterGUIHold

DWORD value that controls whether users of Toshiba digital phones hear dial tone after putting a call on hold using ViewPoint.

If the phone has multiple line appearances, dial tone is not heard after ViewPoint hold regardless of this setting. This setting affects only phones with no line appearances.

Default value is **0** (no dial tone.) Can be set to **1** (dial tone.)

System database settings

Server\DirectCallsUseFaxTarget

DWORD value that determines whether incoming faxes on DID calls are diverted to the **Send faxes to** extension for the trunk. When enabled, faxes are diverted, but all trunks on the span must use the same fax target. When disabled, DID calls are always routed to the user whose DID number is being dialed, even when they are fax calls.

Default value is **0** (disabled.) Can be set to **1** (enabled.)

Server\DropMonitorsAfterTransferComplete

DWORD value specifying whether supervisors on a call are disconnected when the user they are supervising is transferred to a new third party, or parked and then unparked by a new third party. Supervisors are users who have used the **Coach** or **Monitor** command on the call.

The default is **1** (supervisors are disconnected when the supervised user is transferred.) Can be set to **0**, in which case supervisors remain with the call as long as the new third party doesn't prohibit supervision.

Note that the supervisor is always disconnected if the supervised user leaves the call, or if a user who prohibits supervision enters the call.

Server\E911RingDuration

DWORD value that specifies the number of milliseconds to ring E-911 stations before dialing out of trunk.

Default value is **4000** milliseconds (4 seconds.)

Server\EmailNotifyAddSubmittedTime

BOOLEAN value specifying whether TeleVantage adds a line to the body each e-mail notification of a new voice message, listing the timestamp when TeleVantage submitted the e-mail to the e-mail server. Use this setting to help debug delays in e-mail notification.

Default is **0** (timestamp not included.) Set to **1** to include the timestamp.

Server\EnableIPAddressMatch

DWORD value specifying whether IP phones defined as external stations require a connection string of *<ext>*<pwd>*. The setting applies especially to Uniden IP phones. The default of **0** means that a connection string is not required, and the IP phone connects to TeleVantage automatically using IP address matching. This setting has some security risk. Can be set to **1**, in which case the connection string is required.

System database settings

Server\ExternalCallOfferingDelay

DWORD value specifying the wait (in milliseconds) before TeleVantage starts call offering on a trunk for routing lists and call forwarding. This setting applies to normal PSTN calls (analog, RB T1, and ISDN.) For IP calls where a positive indication of connection is received, use **ExternalCallOfferingDelayConnected**.

Default is **8000** milliseconds.

Server\ExternalCallOfferingDelayConnected

DWORD value specifying the wait (in milliseconds) before TeleVantage starts call offering on a trunk for routing lists and call forwarding. This setting applies to IP calls where a positive indication of connection is received. For normal PSTN calls (analog, RB T1, and ISDN), use **ExternalCallOfferingDelay**.

Default is **100** milliseconds.

Server\HoldRecallBehaviorForParkedCalls

DWORD value specifying the system-wide behavior when a ringback calls is answered (ringback calls are calls left on hold or parked that ring the user back.) When set to **0**, the system announces the call. When set to **1**, the call is immediately connected.

Default is **0**.

Server\InternalDialtoneTrunkFirsttimeout

DWORD value that specifies the dial tone duration (in milliseconds) before the trunk goes to reorder when a user is logged in remotely.

Default value is **180000** milliseconds.

Server\InternalDialtoneTrunkSecondtimeout

DWORD value that specifies the dial tone duration (in milliseconds) after a remote party hangs up before the station goes to reorder when a user is logged in remotely.

Default value is **180000** milliseconds.

Server\InternalDialtoneStationFirsttimeout

DWORD value that specifies the dial tone duration (in milliseconds) before the station goes to reorder.

Default value is **25000** milliseconds.

Server\InternalDialtoneStationSecondtimeout

DWORD value that specifies the dial tone duration (in milliseconds) after a remote party hangs up before the station goes to reorder. If there is a PBX behind TeleVantage that uses the reorder tone as a disconnect tone, you may want to decrease this value.

Default value is **5000** milliseconds.

System database settings

Server\IPVoiceTitleMaxSilence

Sometimes voice titles for IP calls are cut off. This is because latency causes extra silence at the start of the call. This setting allows you to change the Maximum duration of silence allowed in milliseconds.

Default is **2000**

Server\LongIdleTime

DWORD value that specifies the minimum duration (in seconds) of a function call or IVR Plug-in before a Windows event is generated.

Default value is **21600** seconds.

Server\MaxAutoAttendantLoops

DWORD value that specifies the maximum number of auto attendants to which a call will be routed without the caller pressing a key.

Default value is **3**.

Server\MaxGreetingDuration

The maximum length (in minutes) of a single greeting recording.

Default is **5** minutes.

Server\MaxRingDuration

DWORD value that specifies the maximum ring duration (in milliseconds) for internal and external calls. The maximum possible value is **999000**. Note that for live Operator systems you might want to use the maximum value, to help prevent Operator calls from continuing down the Operator's routing list.

Default value is **120000** milliseconds.

Server\MinimumMessage

DWORD value that specifies the minimum duration (in milliseconds) for voicemail messages. Messages shorter than this are discarded.

Default value is **2000** milliseconds.)

Server\MinRingDuration

DWORD value that specifies the minimum ring duration (in milliseconds) for internal and external calls. The minimum possible value is 1000.

Default value is **5000** milliseconds.

Server\MinRingDurationForExternal

DWORD value that specifies the minimum ring duration (in milliseconds) for external calls.

Default value is **12000** milliseconds.

System database settings

Server\MinRingDurationForExternalCallOffering

DWORD value that specifies the minimum ring duration (in milliseconds) for external calls using call offering in routing lists.

Default value is **12000** milliseconds.

Server\MinRingDurationForExternalPadding

DWORD value that specifies the extra time (in milliseconds) that the system adds to ring durations for external calls in routing lists.

Default value is **3000** milliseconds.

Server\MSDEFullPercentage

DWORD value specifying the maximum percentage of MSDE database size allowed, after which the Server will stop logging call data.

Default is **90**.

Server\MSDECriticalLimitPercentage

DWORD value specifying the critical limit on the MSDE database size (as a percentage), at which the phone system raises an NT event.

Default is **80**.

Server\OutOfConfResEventInterval

Settings that determines whether the Server logs a message to the TeleVantage Event Log whenever it runs out of conference resources. Possible values are:

- 1:** Conference resource failures are not logged.
- 0:** Conference resource failures are always logged.
- xxx:** Number of milliseconds to wait for before logging a consecutive failure event.

Server\PageRequestTimeout

DWORD value specifying how much time (in milliseconds) the Server allots, when a user makes a page, to take all paged Cybiolink and Aastra Powertouch phones offhook. (No delay occurs for Toshiba digital phones.) At the end of the allotted time the page connection is made with however many phones were successfully taken offhook. Note that if the time is too short, some paged phones will not be taken offhook and will not receive the page.

Default is **10000** milliseconds.

Server\PageTimeout

DWORD value specifying how much time (in milliseconds) a page can last, following the beep that signals connection. At the end of the allotted time, the page ends automatically.

Default is **30000** milliseconds.

System database settings

Server\PageVoxAllocMaxRetryInterval

DWORD value specifying the length of time TeleVantage waits (in milliseconds) to retry taking a phone offhook for a page, after it fails due to lack of voice resources.

Default is **2000** milliseconds

Server\PageVoxAllocRetries

DWORD value specifying the maximum number of attempts to take a phone offhook for a page.

Default is **10**.

Server\ParkHoldRingBackBehavior

DWORD value specifying what happens to parked calls that are never unparked.

If set to **0**, (the default), calls remain parked indefinitely.

If set to **1**, calls go to the voice mailbox of the user who parked the call. If the user has no voice mailbox, the call goes to the user's personal Operator.

If set to **2**, calls go to the personal Operator of the user who parked the call.

Server\PauseBetweenRingback

DWORD value specifying (in seconds) how long TeleVantage waits between ringback attempts for a call left on hold or parked. Used in conjunction with RingbackRetries.

Default is **10**.

Server\PlayInSeconds

DWORD value specifying whether the Expected Wait Time prompt for call center queues announces the wait time in minutes only, or minutes and seconds. A setting of **1** announces minutes and seconds. A setting of **0** (the default) announces minutes only.

Server\PlayToneBeforePage

DWORD value specifying whether TeleVantage plays a beep tone on page/intercom calls using *15 before the call is connected. A setting of **1** (the default) plays the beep. A setting of **0** connects the page/intercom call without a beep.

Server\PrependVTMessageDuration

DWORD value specifying the length (in seconds) of voice messages beyond which TeleVantage does not automatically prepend the caller's voice title. On short messages, the voice title is sometimes wanted to identify the caller, while on longer messages it is assumed the identification is provided in the message.

Default is **5.5** seconds.

System database settings

Server\RefreshVMWI

DWORD value specifying the number of milliseconds to wait before refreshing the CLASS phone message waiting lights.

Default is **5000** milliseconds.

Server\PresentExtensionBeforeCallerID

DWORD value specifying how callback is performed on voice messages that have both an extension and a Caller ID number. This can occur when a user calls in from a remote phone, logs in, presses # and dials an internal number, and leaves a message. When set to **0** (the default), callback dials the Caller ID number. When set to **1**, callback dials the extension.

Server\RequireLoginForTUIOnTrunk

DWORD value specifying whether or not TeleVantage will require a user login after pressing ** on a remote phone (trunk ** has the same effect as a station flash.)

Default value is **1** (login is required.) A value of **0** specifies that login is not required.

Server\RestartTimerAfterRingingAgent

DWORD value that controls whether Hold prompts play when agents are available in a call center queue. If set to **1** (True), Hold prompts do not play as long as an agent is available. The **Seconds before this prompt** setting starts counting only when all agents are unavailable. (This restores the TeleVantage 4.x behavior.)

If set to **0** (False), Hold prompts always play according to the **Seconds before this prompt** schedule, whether or not agents are available. (This can result in callers hearing Hold prompts even when agents are available.)

Default is **0** (False.)

Server\RingbackRetries

DWORD value specifying how many times TeleVantage attempts ringback for a call left on hold or parked, after the first ringback attempt. If the final attempt is unanswered the call is sent to the voicemail of the user who put it on hold or parked it. Used in conjunction with PauseBetweenRingback.

Default is **0**.

Server\RoutingListContinueDelay

DWORD value specifying the time duration a caller has to press # and be advanced to the next action in the routing list.

Default value is **15** seconds.

System database settings

Server\SendDigitsToStationDelay

DWORD value that specifies the delay (in milliseconds) before sending digits to a station, for example, DID digits.

Default value is **0** milliseconds.

Server\TrunkAllocationInterval

DWORD value that specifies the amount of time (in milliseconds) that dialing services wait before trying to allocate another trunk. This is only used when a trunk is not responding. If you decrease this value, you also need to decrease

WaitLoopCurrenttimeout (see page J-9.)

Default value is **1800** milliseconds.

Server\TUIIdleTimeout

DWORD specifying number of milliseconds before the TUI times out. Timeout causes a trunk to hang up. When a station times out, the re-order tone will play and then the station will be disabled until it is hung up.

Default is **120000** milliseconds.

Server\TUITransferRingDelay

LONG value specifying the amount of time (in milliseconds) that the server waits before ringing the recipient's phone on call transfers using the telephone commands. The delay gives the transferer time to hang up when performing a blind transfer. Increasing the ring delay can avoid extra ringing of the recipient's phone that may cause confusion.

Default value is **5000** milliseconds.

Server\UISupportIdleTimeout

DWORD specifying the time in milliseconds before a station goes to dialtone after ViewPoint plays or records audio. Note that if a station is taken off-hook automatically, the timeout is this setting or 10 seconds, whichever is less.

Default is **120000** milliseconds.

System database settings

Server\UseGroupMemberDNDSetting

Specifies whether workgroup calls to an Available user with a shared station ring the phone if the phone's other user is in Do Not Disturb (DND) status.

If set to Off (the default behavior that matches previous versions), whether or not the phone rings depends on which user is currently logged in to the station. If a user is taking calls and is logged in to the station, the phone rings. If a user is in DND and is logged in, the phone does not ring. (For an explanation of logging in to stations, see Chapter 7 of *Using TeleVantage*.)

If set to **1** (On), the phone rings regardless of which user is currently logged in.

Default value is **0** (Off.)

Server\VoxLowEventInterval

Minimum Time interval in milliseconds for generating Event logs when a low priority voice resource cannot be allocated. A low priority voice resource is a voice resource used for setting MWI and paging.

Default value is **-1** (Ignore setting.)

Server\VoxLowBorrowedMinFreeAbsolute

The minimum number of borrowed voice resources the system leaves for other purposes before allocating a borrowed voice resource for a low priority task. A low priority task is an MWI or paging task.

Note: This setting overrides **VoxLowBorrowedMinFreePercentage**.

Default value is **-1** (Equivalent to the number of borrowed voice resources—don't allocate any borrowed voice resources.)

Server\VoxLowBorrowedMinFreePercentage

The minimum percentage of borrowed voice resources the system leaves for other purposes before allocating a borrowed voice resource for a low priority task. A low priority task is an MWI or paging task.

Note: This setting is overridden by **VoxLowBorrowedMinFreeAbsolute** unless that setting is **-1**.

Default value is **-1** (Equivalent to 100%—don't allocate any borrowed voice resources.)

Server\VoxLowSharedMinFreeAbsolute

The minimum number of shared voice resources the system leaves for other purposes before allocating a shared voice resource for a low priority task. A low priority task is an MWI or paging task.

When set to **-1**, the system uses the following table for the value of this setting:

System database settings

Total #of shared voice resources	# of shared resources that remain free for other purposes
1	1
2	1
3	2
4	3
5	4
6	4
7	4
8	4
>8	50% of total # of shared voice resources

Note: This setting overrides **VoxLowSharedMinFreePercentage**.

Default value is **-1** (Use system defaults, see table above.)

Server\VoxLowSharedMinFreePercentage

The minimum percentage of shared voice resources the system leaves for other purposes before allocating a shared voice resource for a low priority task. A low priority task is an MWI or paging task.

Note: This setting is overridden by **VoxLowSharedMinFreeAbsolute** unless that setting is **-1**.

Default value is **-1**, (Equivalent to 50%.)

Server\VoxSysCallRecEventInterval

Minimum time interval in milliseconds for generating Event logs when a voice resource cannot be allocated for System Call Recording.

Default value is **900000** (15 minutes.)

If set to **-1**, this setting is ignored.

Server\VoxSysCallRecBorrowedMinFreeAbsolute

The minimum number of borrowed voice resources the system leaves for other purposes before allocating a borrowed voice resource for System Call Recording.

Note: This setting overrides **VoxSysCallRecBorrowedMinFreePercentage**.

Default value is **-1** (Equivalent to the number of borrowed voice resources—don't allocate any borrowed voice resources.)

System database settings

Server\VoxSysCallRecBorrowedMinFreePercentage

The minimum percentage of borrowed voice resources the system leaves for other purposes before allocating a borrowed voice resource for System Call Recording.

Note: This setting is overridden by **VoxSysCallRecBorrowedMinFreeAbsolute** unless that setting is **-1**.

Default value is **-1** (Equivalent to 100%—don't allocate any borrowed voice resources.)

Server\VoxSysCallRecSharedMinFreeAbsolute

The minimum number of shared voice resources the system leaves for other purposes before allocating a shared voice resource for System Call Recording.

When set to **-1**, the system uses the following table for the value of this setting:

Total #of shared voice resources	# of shared resources that remain free for other purposes
1	1
2	1
3	2
4	3
5	4
6	4
7	4
8	4
>8	10% of total # of shared voice resources

Note: This setting overrides **VoxSysCallRecSharedMinFreePercentage**.

Default value is **-1** (Use system defaults, see table above.)

Server\VoxSysCallRecSharedMinFreePercentage

The minimum percentage of shared voice resources the system leaves for other purposes before allocating a shared voice resource for a System Call Recording.

Note: This setting is overridden by **VoxSysCallRecSharedMinFreeAbsolute** unless that setting is **-1**.

Default value is **-1** (Equivalent to 10%.)

System\MinAdminBuild

DWORD value that specifies minimum build version number of the Administrator program that is allowed to log on to the Server.

Default value is **0**.

System database settings

System\MinClientBuild

DWORD value that specifies minimum build version number of ViewPoint that is allowed to log on to the Server.

Default value is **0**.

System\MinDevMonBuild

DWORD value that specifies minimum build version number of the Device Monitor that is allowed to log on to the Server.

Default value is **0**.

FURTHER READING

The following books and websites offer further information about telecommunications and Microsoft Windows telephony architecture:

Books on telecommunications

Black, Uyless, *Voice over IP*, 2nd edition. ISBN 0-1306-5204-0

Carr, Joseph, Winder, Steve and Bigelow, Stephen J., *Understanding Telephone Electronics*, 4th edition. ISBN 0-7506-7175-0

Bodin, Madeline and Dawson, Keith, *The Call Center Dictionary*, 3rd edition. ISBN 1-5782-0095-4

Carden, Carlton, *Understanding Computer Telephony*, 2nd edition. ISBN 1-5782-0000-8

Dodd, Annabel Z., *The Essential Guide to Telecommunications*, 4th edition. ISBN 0-1314-8725-6

Flannagan, William A., *The Guide to T-1 Networking*, 5th edition. ISBN 1-5782-0021-0

Goralski, Walter J. and Kolon, Matthew C., *IP Telephony*. ISBN 0-0713-5221-X

Grigonis, Richard, *Computer Telephony Encyclopedia*. ISBN 1-5782-0045-8

Miller, Mark A., *Voice over IP - Strategies for the Converged Network*. ISBN 0-7645-4617-1

Moulton, Pete, *The Telecommunications Survival Guide*. ISBN 0-1302-8136-0

Newton, Harry, *Newton's Telecom Dictionary*, 21st edition. ISBN 1-5782-0315-5

Sulkin, Allan, *PBX Systems for IP Telephony*. ISBN 0-0713-7568-6

Camarillo, Gonzalo, *SIP Demystified*. ISBN 0-0713-7340-3

Sinnreich, Henry and Johnston, Alan B., *Internet Communications Using SIP*. ISBN 0-4714-1399-2

Books on Windows telephony architecture

Friedman, Mark, *Windows 2000 Performance Guide*. ISBN 1-5659-2466-5

Mueller, Scott, *Upgrading and Repairing PCs*, 15th edition. ISBN 0-7897-2974-1

Solomon, David, *Inside Microsoft Windows 2000*, 3rd edition. ISBN 0-7356-1021-5

Tulloch, Mitch, *Windows 2000 Administration in a Nutshell*. ISBN 1-5659-2713-3

Web sites about telecommunications

LincMad (telephone area codes and splits)

<http://www.lincmad.com>

AT&T fraud education

<http://www.att.com/fraud>

North American Numbering Plan administration

<http://www.nanpa.com>

Web sites about Windows telephony architecture

AnandTech (hardware analysis and news)

<http://www.anandtech.com>

PCI-SIG specifications

<http://www.pcisig.com/specifications>

Storage Review (hard disk and storage-related performance)

<http://www.storagereview.com>

Freeware Sysinternals (Windows advanced utilities, technical information, and source code)

<http://www.sysinternals.com>

SysOpt.com (system optimization information)

<http://www.sysopt.com>

Tom's Hardware Guide (PC hardware reviews and news)

<http://www.tomshardware.com/index.html>

Upgrading and repairing PCs

<http://www.upgradingandrepairingpcs.com>

Web sites about VoIP

VoIPTroubleshooter (online diagnostic tools for network managers)

www.voiptroubleshooter.com

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